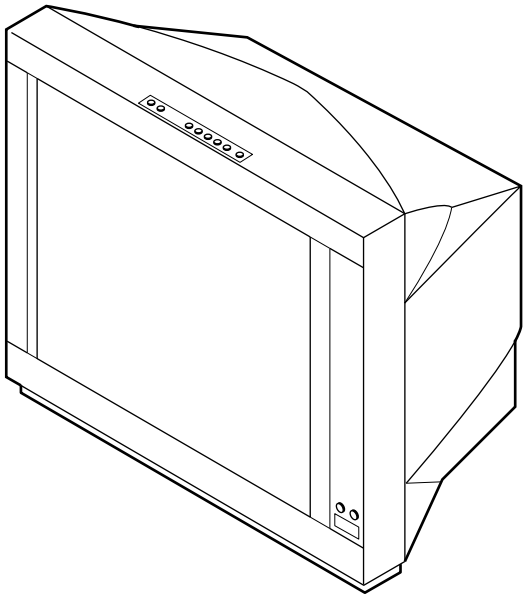
Self Diagnosis
Supported model

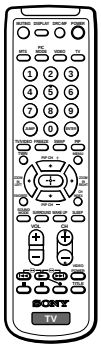
SERVICE MANUAL

AG3 CHASSIS

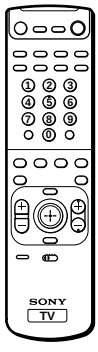
MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-ES29M61	RM-916	THAILAND	SCC-U33A-A
KV-ES29N90	RM-958	TAIWAN	SCC-P37A-A

MODEL	COMMANDER	DEST.	CHASSIS NO.





RM-958



RM-916

MICROFILM

TRINITRON ® COLOR TV

SONY ®

SPECIFICATIONS (KV-ES29M61)

		Note
Power requirements	110-240 V AC, 50/60 Hz	
Power consumption (W)	Indicated on the rear of the TV	
Television system	B/G, I, D/K, M	
Color system	PAL, PAL 60, SECAM, NTSC4.43, NTSC3.58	
Stereo/Bilingual system	NICAM Stereo/Bilingual B/G, I; A2 Stereo/Bilingual (German) B/G	
Teletext Language	English, Arabic, French	
Channel coverage		
B/G	VHF: E2 to E12 / UHF: E21 to E69 / CATV: S01 to S03, S1 to S41	
I	UHF: B21 to B68 / CATV: S01 to S03, S1 to S41	
D/K	VHF: C1 to C12, R1 to R12 / UHF: C13 to C57, R21 to R60 CATV: Z1 to Z39, S01 to S03, S1 to S41	
M	VHF: A2 to A13 / UHF: A14 to A79 / CATV: A-8 to A-2, A to W+4, W+6 to W+84	
(Antenna)	75-ohm external terminal	
Audio output (Speaker)	15W + 15W	10% distortion
Number of terminal		
(Video)	Input: 4 Output: 1	Phono jacks; 1 V_{P-P}, 75 ohms
♪ (Audio)	Input: 4 Output: 1	Phono jacks; 500 mVrms
(S Video)	Input: 2	Y : 1 Vp-p, 75 ohms, unbalanced, sync negative C : 0.286 Vp-p, 75 ohms
(Component Video)	Input: 1	Phono jacks Y : 1 Vp-p, 75 ohms, sync negative C_B : 0.7 Vp-p, 75 ohms C_R : 0.7 Vp-p, 75 ohms Audio : 500 mVrms
DIGITAL IN	Input: 1	Phono jack; 0.5 Vp-p, 75 ohms
(Headphones)	Output: 1	Stereo minijack
Picture tube	29 inch	
Tube size (cm)	72	Measured diagonally
Screen size (cm)	68	Measured diagonally
Dimension (w/h/d, mm)	722 x 561 x 524	
Mass (kg)	56	

Design and specifications are subject to change without notice.

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SPECIFICATIONS (KV-ES29N90)

		Note
Power requirements	110 V AC, 60 Hz	
Power consumption (W)	Indicated on the rear of the TV	
Television system	M	
Color system	NTSC 3.58, PAL*, PAL 60*, SECAM*, NTSC 4.43*	* AV IN only
Stereo/Bilingual system	MTS	
Channel coverage	VHF: 2 to 13 / UHF: 14 to 69 CATV: 1 to 125	
⅂⊢ (Antenna)	75-ohm external terminal	
Audio output (Speaker)	15W + 15W	10% distortion
Number of terminal		
VIDEO	Input: 4 Output: 1	Phono jacks; 1 V_{P-P}, 75 ohms
AUDIO	Input: 4 Output: 1	Phono jacks; 500 mVrms
S VIDEO	Input: 2	Y : 1 Vp-p, 75 ohms, unbalanced, sync negative C : 0.286 Vp-p, 75 ohms
COMPONENT VIDEO (DVD) IN	Input: 1	Phono jacks Y : 1 Vp-p, 75 ohms, sync negative C_B : 0.7 Vp-p, 75 ohms C_R : 0.7 Vp-p, 75 ohms Audio : 500 mVrms
DIGITAL IN	Input: 1	Phono jack; 0.5 Vp-p, 75 ohms
🎧 (Headphones)	Output: 1	Stereo minijack
Picture tube	29 inch	
Tube size (mm)	724	Measured diagonally
Screen size (mm)	675.2	Measured diagonally
Dimension (w/h/d, mm)	722 x 561 x 524	
Mass (kg)	56	

Design and specifications are subject to change without notice.

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SELF DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY/TIMER lamp will automatically begin to flash.
The number of times the lamp flashes translates to a probable source of the problem. A definition of the STANDBY/TIMER lamp flash indicators is listed in the instruction manual for the user's knowledge and reference. If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

1. DIAGNOSTIC TEST INDICATORS

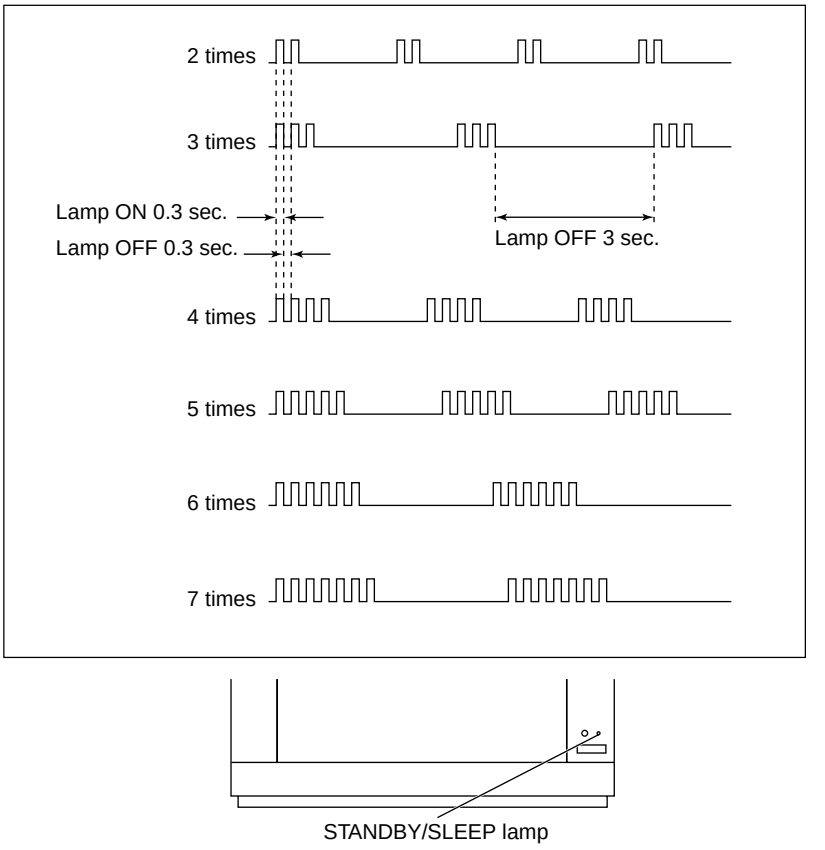
When an errors occurs, the STANDBY/TIMER lamp will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the lamp will identify the first of the problem areas.

Result for all of the following diagnostic items are displayed on screen. No error has occured if the screen displays a "0".

Diagnostic Item Description	No. of times STANDBY/TIMER lamp flashes	Self-diagnostic display/Diagnostic result	Probable Cause Location	Detected Symptoms
• Power does not turn on	Does not light	—	• Power cord is not plugged in. • Fuse is burned out F1601 (F1 Board)	• Power does not come on. • No power is supplied to the TV. • AC power supply is faulty.
• +B overcurrent (OCP)	2 times	002:000 or 002:001~255	• H.OUT Q6807 is shorted. • H.LIM Q6810 is shorted.	• Power does not come on. • Load on power line is shorted.
• +B overvoltage (OVP)	3 times	003:000 or 003:001~255	• PH 6602 faulty. • 10.5V is not supplied. (D board)	• Power does not come on.
• Vertical deflection failure	4 times	004:000 or 004:001~255	• V.OUT IC6800 faulty D6816 faulty D6817 faulty D6824 faulty R6852 open R6851 open	• Vertical deflection pulse is stopped. • Vertical size is too small. • Vertical deflection stopped.
• White balance failure (no PICTURE)	5 times	005:000 or 005:001~255	• G2 is improperly adjusted. (Note 2) • CRT problem. • Video OUT IC9001, 9002, 9003 are faulty. (C board) • IC8306 (J board) and IC4301 (E board) are faulty. • No connection E board to C board.	• No raster is generated. • CRT cathode current detection reference pulse output is small.
• Horizontal deflection failure	6 times	006:000 or 006:001~225	• C6831 is open circuit. • CN6101 (D1 board) is disconnected.	• H pulse output is too high.
• Audio Protection	7 times	007:000 or 007:001~225	• Power supply fails. • IC1203, IC1204 faulty	• There is picture but speaker does not release sound.
• Micro reset	—	101:00 or 101:001~225	• Discharge CRT (C Board) • Static discharge • External noise	• Power is shut down shortly, after this return back to normal. • Detect Micro latch up.

Note 1: Refer to screen (G2) Adjustment in section 4-5 of this manual.

2. DISPLAY OF STANDBY/TIMER LIGHT FLASH COUNT



Diagnostic Item	Flash Count*
+B overcurrent	2 times
+B overvoltage	3 times
V deflection stop	4 times
White balance failure	5 times
High voltage protector	6 times
Audio Protection	7 times

* One flash count is not used for self-diagnostic.

3. STOPPING THE STANDBY/TIMER FLASH

Turn off the power switch on the TV main unit or unplug the power cord from the outlet to stop the STANDBY/TIMER lamp from flashing.

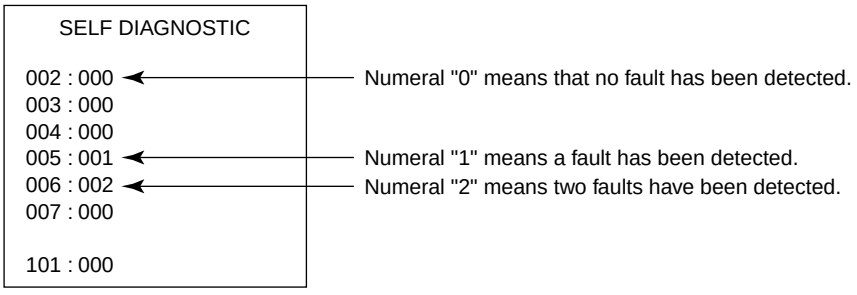
4. SELF-DIAGNOSTIC SCREEN DISPLAY

For errors with symptoms such as “power sometimes shuts off” or “screen sometimes goes out” that cannot be confirmed, it is possible to bring up past occurances of failure for confirmation on the screen:

[To Bring Up Screen Test]
In standby mode, press buttons on the remote commander sequentially in rapid succession as shown below:

Screen display ➡ channel 5 ➡ Sound volume - ➡ Power ON
⇧
Note that this differs from entering the service mode (mode volume +).

Self-Diagnosis screen display


SELF DIAGNOSTIC
002 : 000
003 : 000
004 : 000
005 : 001
006 : 002
007 : 000
101 : 000
Numeral "0" means that no fault has been detected.
Numeral "1" means a fault has been detected.
Numeral "2" means two faults have been detected.

5. HANDLING OF SELF-DIAGNOSTIC SCREEN DISPLAY

Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen during repairs. When you have completed the repairs, clear the result display to “0”.

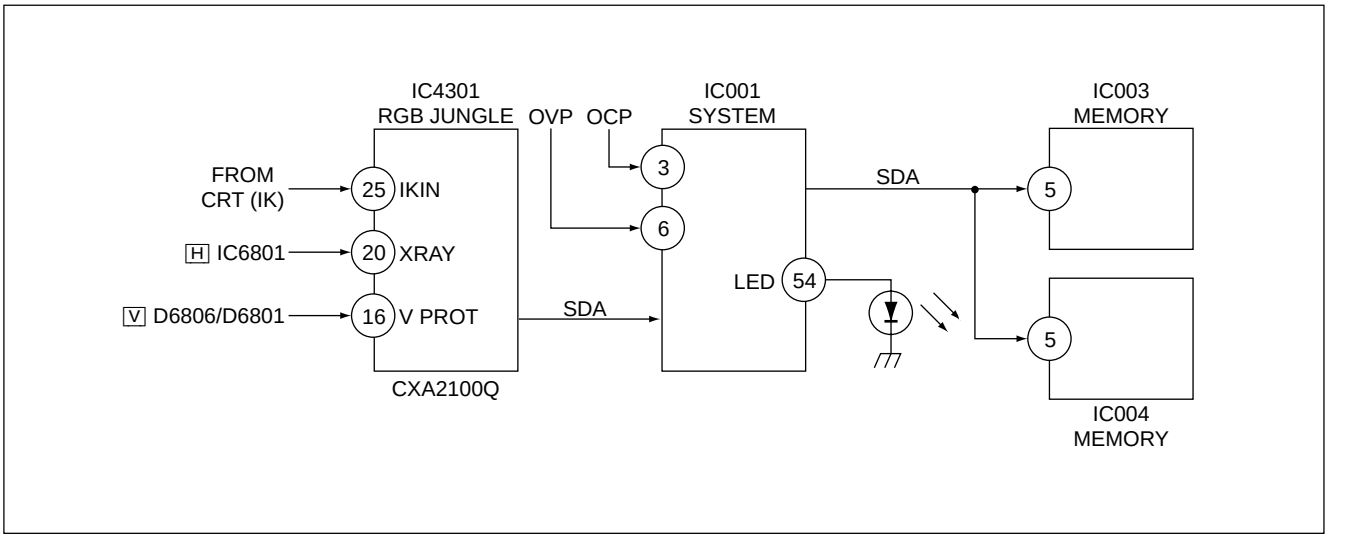
Unless the result display is cleared to “0”, the self-diagnostic function will not be able to detect subsequent faults after completion of the repairs.

[Clearing the result display]
To clear the result display to “0”, press buttons on the remote commander sequentially as shown below when the diagnostic screen is being displayed.

Channel 8 ➡ 0

[Quitting Self-diagnostic screen]
To quit the entire self-diagnostic screen, turn off the power switch on the remote commander or the main unit.

6. SELF-DIAGNOSTIC CIRCUIT



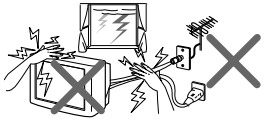
+B overcurrent (OCP)	Occurs when an overcurrent on the +B(135) line is detected by Q6610 and Q6609. If Q6610 and Q6609 go to ON, the voltage to the pin3 of IC001 go to UP. The unit will automatically turn off.
+B overvoltage (OVP)	Occurs when an overvoltage on the +B(135) line is detected by D6635, Q6611 and Q6612. If Q6611 and Q6612 go to ON, the voltage to pin6 of IC001 go to UP. The unit will automatically turn off.
Vertical deflection failure	Occurs when an absence of the vertical deflection pulse is detected by Q6811, Q6819, Q6820, Q6821 and D6801. Shut down the power supply.
White balance failure	If the RGB levels do not balance or become low level within 5 seconds. This error will be detected by IC4301. TV will stay on, but there will be no picture.
High voltage protector of Horizontal Deflection	Occurs when an overvoltage of horizontal pulse is detected by D6809 and IC6801. If the voltage of 7 pin of IC6801 goes to High, the voltage to pin20 of IC4301 go to UP. The unit will automatically turn off.

SECTION 1-1
GENERAL
(KV-ES29M61)

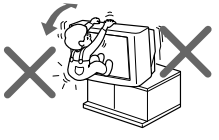
The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

WARNING

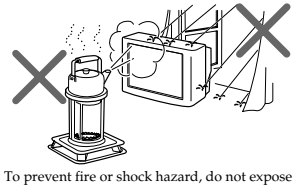
- Dangerously high voltages are present inside the TV.
- Operate the TV only between 110 – 240 V AC.



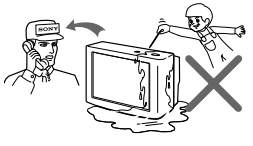
For your own safety, do not touch any part of the TV, the power cord and the antenna cable during lightning storms.



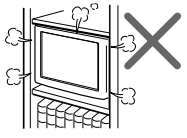
Install the TV in a stable position. Do not allow children to climb onto it.



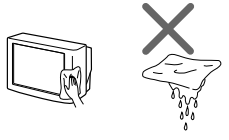
To prevent fire or shock hazard, do not expose the TV to rain or moisture.



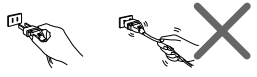
Do not operate the TV if any liquid or solid object falls into it. Have it checked immediately by qualified personnel only.



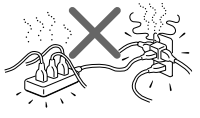
Do not install the TV in a confined space, such as a bookcase or built-in cabinet.
Do not block the ventilation openings of the TV.



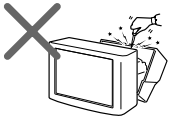
Clean the TV with a dry and soft cloth.
Do not use benzine, thinner, or any other chemicals to clean the TV. Do not scratch the picture tube.



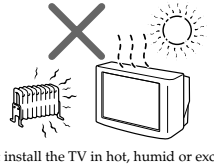
Pull the power cord out by the plug. Do not pull the power cord itself. Disconnect the TV if you are not going to use it for several days.



Do not plug in too many appliances to the same power socket. Do not damage the power cord.



Do not open the cabinet and the rear cover of the TV. Refer servicing to qualified personnel.



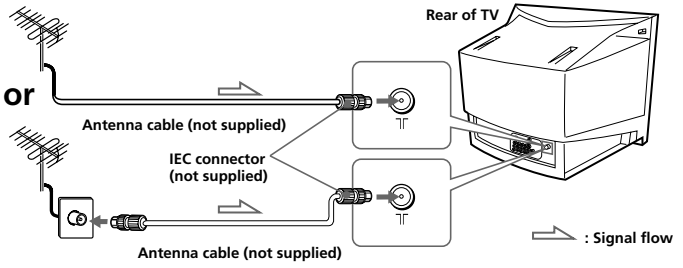
Do not install the TV in hot, humid or excessively dusty places.

Getting Started

Step 1

Connect the antenna

If you wish to connect a VCR, see the "Connecting a VCR" diagram below.

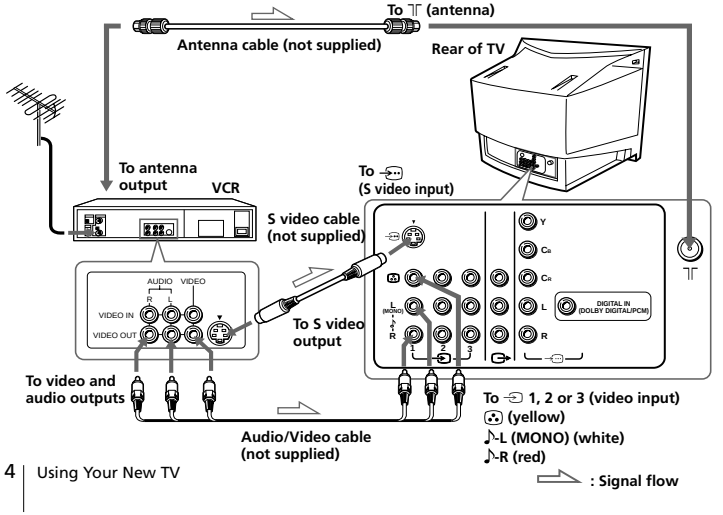


CAUTION

Do not connect the power cord until all other connections are complete; otherwise, a minimal current leakage through the antenna and/or other terminals to the ground could occur.

Connecting a VCR

To play a video tape, press ⊖ (see page 11).

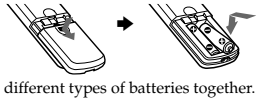


Notes

- If you connect a monaural VCR, connect the yellow plug to (the yellow jack) and the black plug to ♪-L (MONO) (the white jack).
- If you connect a VCR to the (antenna) terminal, preset the signal output from the VCR to the program number 0 on the TV.
- When both the (S video input) and 1 (video input) are connected, the (S video input) is automatically selected. To view the video input to 1 (video input), disconnect the S video cable.

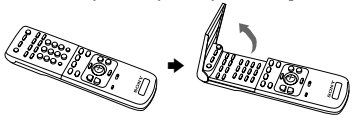
Step 2

Insert the batteries into the remote



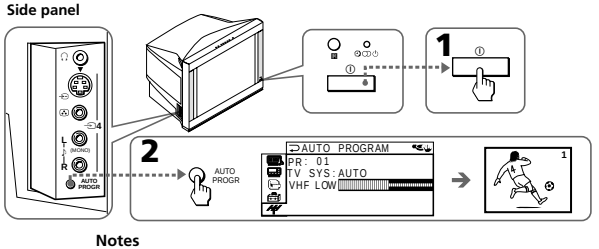
Notes

- Do not use old batteries or different types of batteries together.
- To operate some of the functions of your TV, you may have to open the remote control cover.



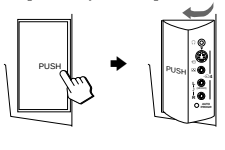
Step 3

Preset the channels automatically



Notes

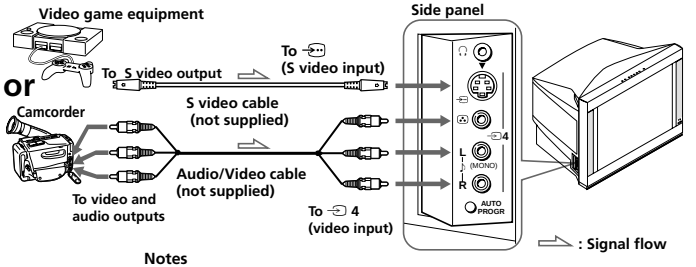
- To stop the automatic channel presetting, press MENU twice.
- If your TV has preset an unwanted channel or cannot preset a particular channel, then preset your TV manually (see page 42).
- To open the side panel of your TV, push on it until you hear a click, then it will open.



Connecting optional components

You can connect optional audio/video components, such as a VCR, multi disc player, camcorder, video game, or stereo system. To watch and operate the connected equipment, see pages 11 and 26.

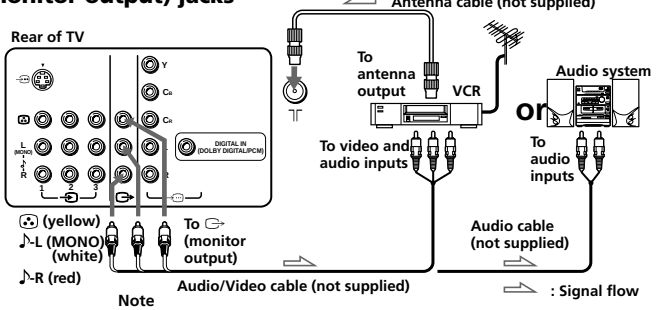
Connecting a camcorder/video game equipment using the (video input) jacks



Notes

- When connecting video game equipment, display the "FEATURE" menu and select "ON" for "GAME MODE" to adjust the picture setting that is suitable for video games (see page 37).
- You can also connect video equipment to the 1, 2, or 3 (video input) jacks at the rear of your TV.
- When both the (S video input) and 4 (video input) are connected, the (S video input) is automatically selected. To view the video input to 4 (video input), disconnect the S video cable.

Connecting audio/video equipment using the (monitor output) jacks



Note

- If you select "DVD" on your TV screen, no signal will be output at the (monitor output) jacks (see page 11).

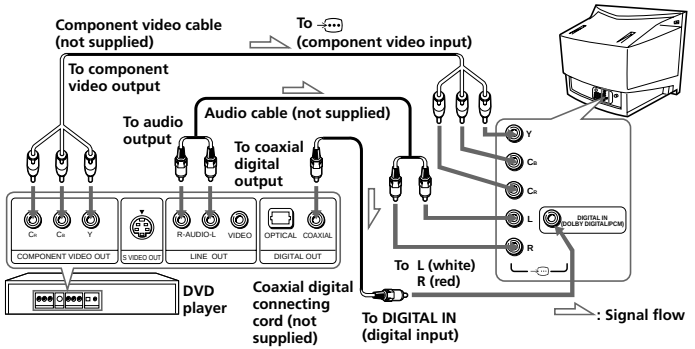
Connecting a DVD player to (component video input)

1 Using an audio cable, connect R and L under (component video input) on your TV to the LINE OUT, AUDIO R and L output connectors on your DVD player.

2 Using a coaxial digital connecting cord, connect DIGITAL IN under (component video input) on your TV to the DIGITAL OUT, COAXIAL output connector on your DVD player.

3 Using a component video cable, connect Y, C_B, and C_R under (component video input) on your TV to the COMPONENT VIDEO OUT Y, C_B, and C_R output connectors on your DVD player.

4 Press on the remote or the TV until "DVD" appears on the screen.



Notes

- Some DVD player terminals may be labeled differently:

Connect	To (on the DVD player)
Y (green)	Y
C_B (blue)	C_b, B-Y or P_B
C_R (red)	C_r, R-Y or P_R

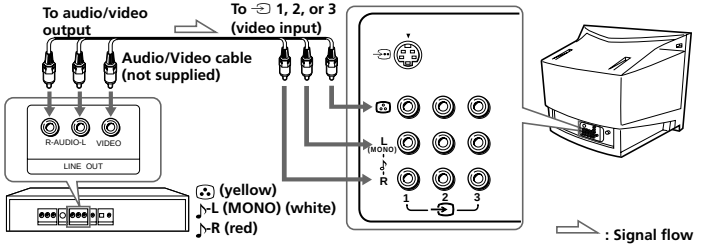
- When connecting to (component video input) on your TV, you must connect Y, C_B, and C_R to receive the video signals, and at least connect DIGITAL IN to receive digital audio signals or connect L and R to receive analog audio signals (see page 33).
- When making connections to DIGITAL IN under (component video input) on your TV, always set "DIGITAL IN: OFF" in the "A/V CONTROL" menu. After completing all connections, then set "DIGITAL IN: ON". If you set "DIGITAL IN: ON" while still making connections to DIGITAL IN (component video input), a loud noise may suddenly come out from the speakers, affecting your hearing and causing damage to the speakers (see page 33).

continued

Connecting optional components (continued)

Connecting a DVD player to (video input)

Connect 1, 2, or 3 (video input) ♪/ (audio/video) connectors on your TV to LINE OUT on your DVD player.



Notes

- Since the high quality pictures on a DVD disc contain a lot of information, picture noise may appear. In this case, adjust the sharpness ("SHARP") under "PERSONAL ADJUST" in the "PICTURE MODE" menu (see page 32).
- Connect your DVD player directly to your TV. Connecting the DVD player through other video equipment will cause unwanted picture noise.

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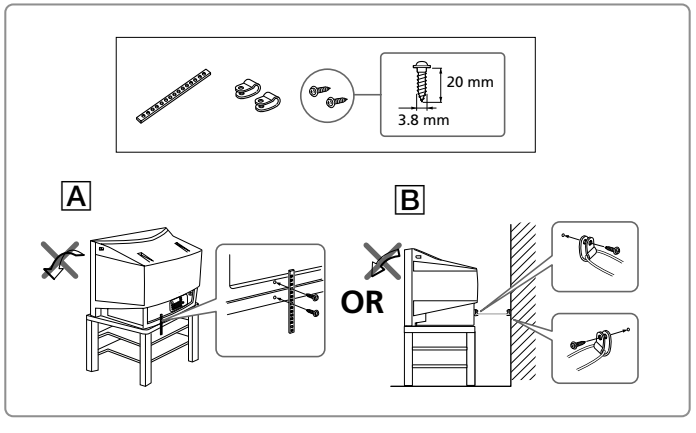
Securing the TV

To prevent the TV from falling, secure the TV using one of the following methods:

A With the supplied screws, attach the stabilizer band to the TV stand and to the rear of the TV using the provided hole.

OR

B Pass a cord or chain through the clamps and secure them to the rear of the TV and a wall or pillar.

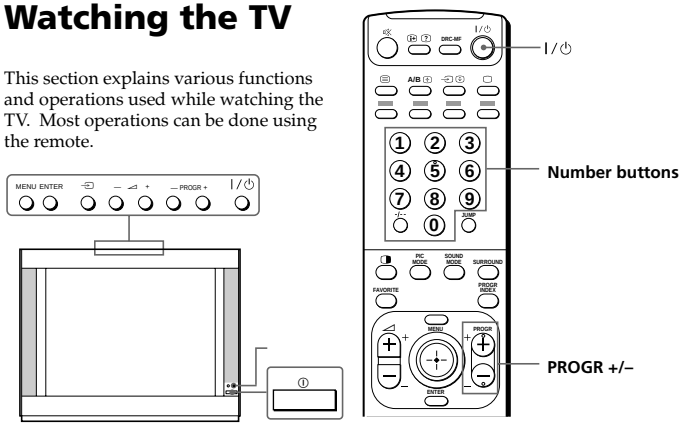


Note

- Use only the supplied screws. Use of other screws may damage the TV.

Watching the TV

This section explains various functions and operations used while watching the TV. Most operations can be done using the remote.

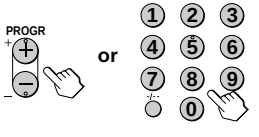


1 Press ⏻ to turn on the TV.

When the TV is in standby mode (the ⏻ indicator on the TV is lit red), press **I/⏻** on the remote or on the TV.

2 Press PROGR +/– or the number buttons to select the TV channel.

For double digit numbers, press -/--, then the number (e.g., for 25, press -/--, then 2 and 5).



Note

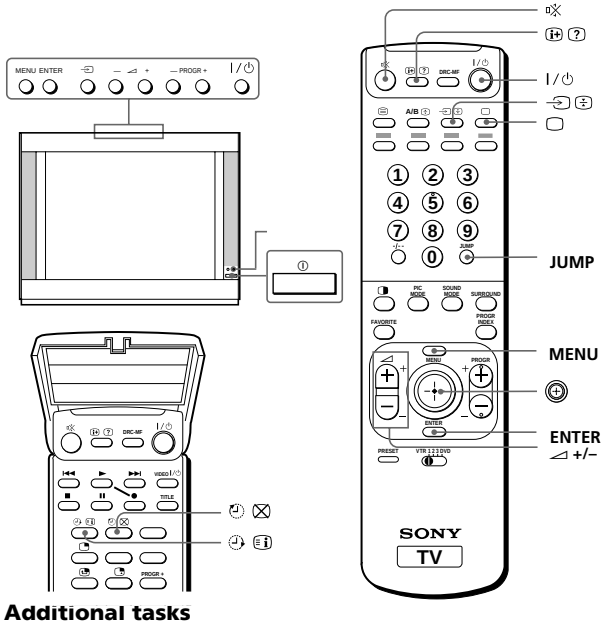
- When you turn on the TV, either the program number or video mode is displayed for approximately 40 seconds. The ECO MODE (🌲) icon will also appear if "ECO MODE " in the "FEATURE" menu is set "ON" (see page 37).

To select a TV program quickly

(1) Press and hold PROGR +/–.
(2) Release PROGR +/– when the desired program number appears.

Note

- When you select a TV program quickly, the picture may be disrupted. This does not indicate a malfunction.



Additional tasks

To	Press
Turn off temporarily	I/⏻. The ⏻ indicator on the TV lights up red.
Turn off completely	⏻ on the TV.
Adjust the volume	+/–.
Mute the sound	🔇.
Watch the video input (VCR, camcorder, etc.)	(or on the TV) to select "VIDEO 1", "VIDEO 2", "VIDEO 3", "VIDEO 4"or "DVD". To return to the TV screen, press (or on the TV).
Jump back to the previous channel	JUMP.
Display the on-screen information*	.

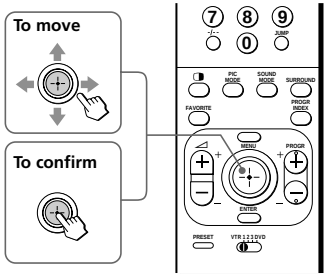
* Some picture/sound settings, and either the program number or video mode are displayed. The on-screen display for the picture/sound settings disappears after about 3 seconds.

continued

Using the Remote Control Button Joystick ( )

You can select the menu item on the screen by moving up, down, left or right (see page 30).

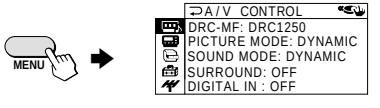
To confirm a selected item, press .
You can also press ENTER on the remote to confirm a selected item.



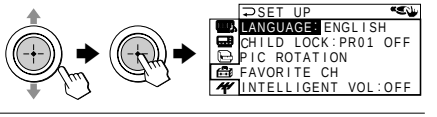
Changing the menu language

You can change the menu language as well as the on-screen language. For details on how to use the menu, see "Introducing the menu system" on page 28.

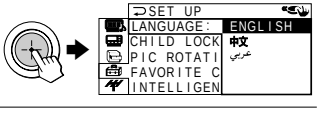
1 Press MENU.



2 Move up or down to select , then press .

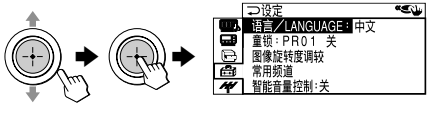


3 Make sure "LANGUAGE" is selected then press .



4 Move up or down to select the desired language (e.g., **中文**), then press .

The selected menu language appears.



To return to the normal screen

Press MENU.

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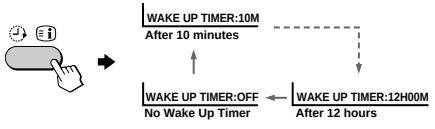
Setting the Wake Up timer

1 Press ⏲ until the desired period of time appears.

The Wake Up timer starts immediately after you have set it.



2 Select the TV channel or video mode you want to wake up to.

3 Press I/⏻, or set the Sleep timer if you want the TV to turn off automatically.

The ⏲ indicator on the TV lights up orange.

To cancel the Wake Up timer

Press ⏲ until "WAKE UP TIMER: OFF" appears, or turn off the TV's main power.

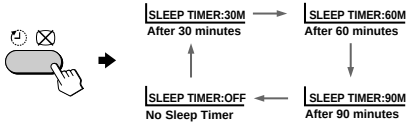
Note

- If no buttons or controls are pressed for more than two hours after the TV is turned on using the Wake Up timer, the TV automatically goes into standby mode. To resume watching the TV, press any button or control on the TV or the remote.

Setting the Sleep timer

Press ⏱ until the desired period of time appears.

The Sleep timer starts immediately after you have set it.

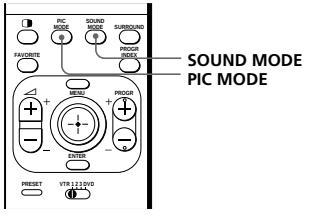


To cancel the Sleep timer

Press ⏱ until "SLEEP TIMER: OFF" appears, or turn the TV off.

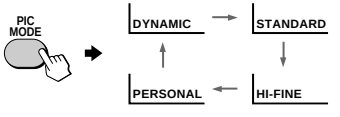
Selecting the picture and sound modes

You can select picture and sound modes and adjust the setting to your preference in the "PERSONAL" option.



Selecting the picture mode

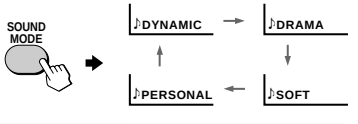
Press PIC MODE repeatedly until the desired picture mode is selected.



Select	To
"DYNAMIC"	receive high contrast pictures.
"STANDARD"	receive normal pictures.
"HI-FINE"	receive higher resolution pictures with mild contrast.
"PERSONAL"	receive the last adjusted picture setting from the "ADJUST" option in the "A/V CONTROL" menu (see page 32).

Selecting the sound mode

Press SOUND MODE repeatedly until the desired sound mode is selected.



Select	To
"DYNAMIC"	listen to dynamic and clear sound that emphasizes both the low and high tones.
"DRAMA"	listen to sound that emphasizes voice and high tones.
"SOFT"	receive soft sound.
"PERSONAL"	receive the last adjusted sound setting from the "ADJUST" option in the "A/V CONTROL" menu (see page 32).

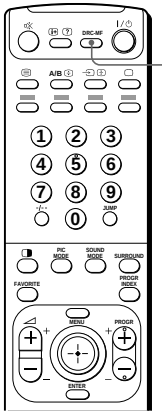
Tip

- You can also set the picture and sound modes using the menu (see "Changing the "A/V CONTROL" setting" on page 31).

Viewing higher quality pictures

— "DRC-MF"

The Digital Reality Creation-Multi Function (DRC-MF) feature allows you to enjoy higher quality pictures on your TV. You can select "DRC1250" to watch super real (higher resolution) pictures, or "DRC100" to reduce flicker if necessary.



Press DRC-MF repeatedly until you receive the desired picture quality.

Select	To
"DRC1250"	select higher resolution pictures.
"DRC100"	reduce flicker on the screen.

Tip

- When the broadcast signal is weak, you may see some dots or noise on the TV screen. To reduce this interference, display the "A/V CONTROL" menu and select "ADJUST" in "PICTURE MODE", then adjust "SHARP" to reduce the sharpness (see page 32).

Note

- The DRC-MF mode is not selectable when using the "PROGRAM INDEX" or "FAVORITE" channel feature, or when the "GAME MODE", Picture-In-Picture ("PIP"), or "TWIN" mode is turned "ON".

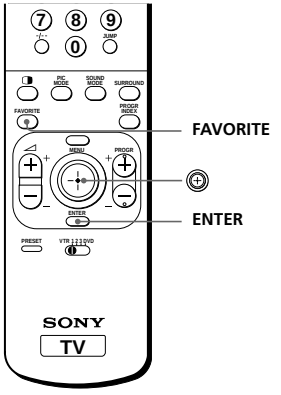
The DRC-MF logo (DRC-MF Digital Reality Creation) and "DRC-MF" are trademarks of Sony Corporation.

Viewing your favorite channels

— "FAVORITE CH"

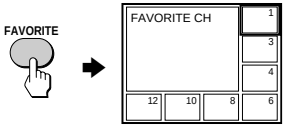
You can display seven favorite channels for quick and easy selection.

The last seven channels selected with the number buttons are displayed in "AUTO" mode. You can set up your own favorite channels in "MANUAL" mode under the "FAVORITE CH" menu (see "Changing the favorite channel setting" on page 40).

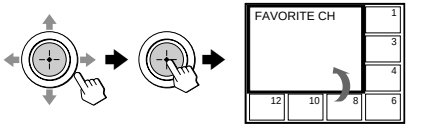


Selecting a favorite channel

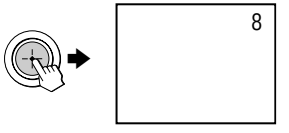
1 Press FAVORITE.



2 Move ⊕ up, down, left or right to select the desired channel (e.g. PR 8), then press ⊕.



3 Press ⊕ again.



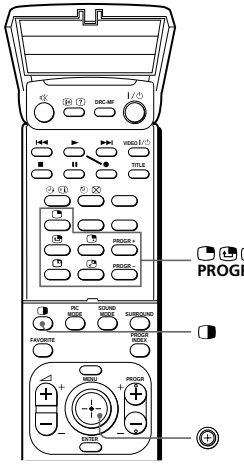
Note

- When you use your TV for the first time, seven preset channels appear.

Watching two programs at the same time

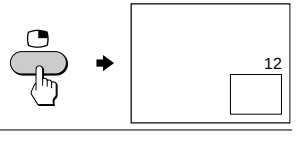
— "PIP", "TWIN"

With the Picture-in-Picture (PIP) or TWIN pictures features, you can display a different TV program or video within or beside the main picture.



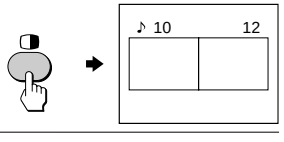
Displaying the PIP screen

Press .



Displaying TWIN pictures

Press .



To return to the normal screen

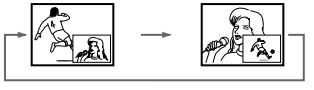
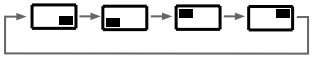
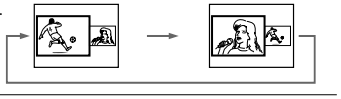
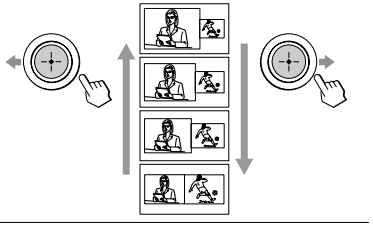
Press (when in the PIP screen) or (when in the TWIN picture screen).

Tip

- You can also display the PIP screen or TWIN pictures using the menu (see "Changing the MULTI PICTURE setting" on page 34).

continued

Additional PIP/TWIN pictures tasks

To	Press/Move
change a TV program in the PIP screen or in the right TWIN picture	Press PROGR + or PROGR –. For a video input, press .
swap pictures between the main and PIP screens	Press . 
freeze the PIP screen	Press . To unfreeze the screen, press the button again.
change the position of the PIP screen	Press . 
swap the right and left pictures of the TWIN pictures	Press . 
change the screen size of the TWIN pictures	Move left to increase the left screen size. Move right to increase the right screen size. 

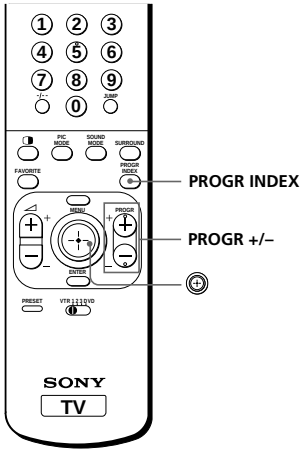
Notes

- The button does not function in the TWIN pictures mode.
- When you display a video input on the PIP screen at a faster/slower speed, the picture may be disrupted depending on the VCR type.
- If you display different color systems on the main screen and the PIP screen, the size of the PIP screen may be different and the PIP picture may be disrupted. This does not indicate a malfunction of the TV.
- In the TWIN picture screen, you can only operate and hear the sound of the main left screen (♪ appears on the screen).
- When the button is pressed, the TV screen flickers or goes blank for about one second before the TWIN pictures appear. This does not indicate a malfunction of the TV.

Displaying multiple programs

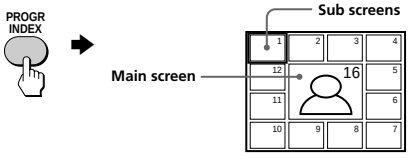
— "PROGRAM INDEX"

The PROGRAM INDEX feature displays all of the preset TV programs on twelve or seven sub screens for direct selection.

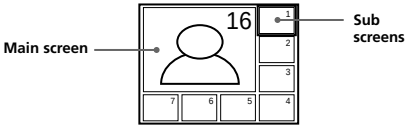


Press PROGR INDEX.

The first twelve preset programs appear one by one, clockwise from the upper left corner.



When the number of the preset TV programs is less than eight, the first seven preset programs appear one by one, clockwise from the upper right corner.



Tip

- When you press the PROGR INDEX button in the TWIN pictures mode, the left picture appears as the main screen of the PROGRAM INDEX mode.

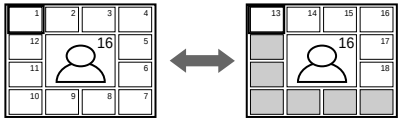
continued

Displaying multiple programs (continued)

To view the next or the previous twelve preset programs

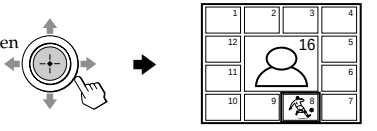
This works only when the number of the preset TV programs is more than twelve.

Press PROGR +/– on the remote or the TV.

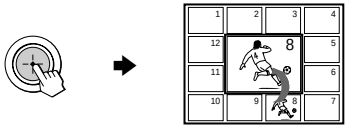


To select the desired program directly from the sub screens

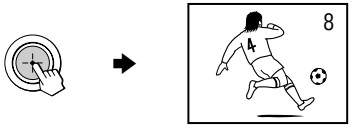
1 Move ⊕ up, down, left or right to move the frame to the screen of the program you want to watch.



2 Press ⊕.



3 Press ⊕ again.



Tip

- Pressing the number buttons directly displays the program.

To return to the normal screen

Press PROGR INDEX again, or:

1 Select "PROGRAM INDEX" from the "MULTI PICTURE" menu.
2 Press ⊕.

Tip

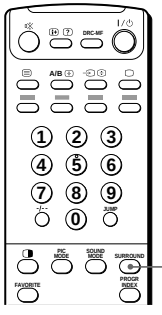
- You can also display multiple programs using the menu (see "Changing the MULTI PICTURE setting" on page 34).

Note

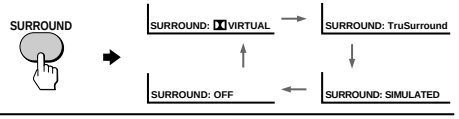
- When displaying multiple programs, only the sound of the main screen is heard.

Listening with surround sound

The surround feature enables you to enjoy the sound effects of a concert hall or movie theater.



Press SURROUND repeatedly until you receive the desired surround sound.



Select	To
"DOLBY VIRTUAL"	listen to Dolby* Surround encoded sound.
"TruSurround"	listen to the surround sound that spreads out to the rear of a room.
"SIMULATED"	listen to monaural sound with a stereo-like effect.
"OFF"	turn off the surround sound.

Notes

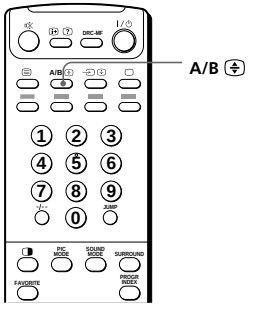
- The Virtual Dolby Surround of this model consists of Dolby Digital, Dolby Pro Logic and TruSurround.
- The "DOLBY VIRTUAL" (Virtual Dolby Digital) is only available when receiving a Dolby Digital signal through the DIGITAL IN (component video input) jack at the rear of your TV and "DIGITAL IN: ON" in the "A/V CONTROL" menu is selected (see pages 7 and 31).
- When using the DIGITAL IN (component video input) jack at the rear of your TV, the available surround modes depend on the type of digital signal being received.
- SIMULATED uses SRS (MONO).

* Manufactured under license from Dolby Laboratories Licensing Corporation. DOLBY, the double-D symbol DOLBY and "PRO LOGIC" are trademarks of Dolby Laboratories Licensing Corporation.

"TruSurround™" is a trademark of SRS Labs, Inc. SRS and the SRS symbol are registered trademarks of SRS Labs, Inc. in the United States and selected foreign countries. SRS and TruSurround are incorporated under license from SRS Labs, Inc. and are protected under United States Patent Nos.4,748,669 and 4,841,572 with numerous additional issued and pending foreign patents".

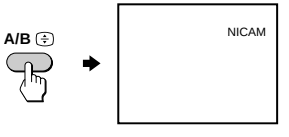
Enjoying stereo or bilingual programs

You can enjoy stereo sound or bilingual programs of NICAM and A2 (German) stereo systems.



Press A/B repeatedly until you receive the sound you want.

The on-screen display changes to show the selected sound and the indicator on the TV lights up red.



When receiving a NICAM program

Broadcasting	On-screen display (Selected sound)
NICAM stereo	NICAM (Stereo sound) → MONO (Regular sound)
NICAM bilingual	NICAM MAIN (Main sound) → NICAM SUB (Sub sound) → MONO (Regular sound)
NICAM monaural	NICAM MAIN (Main sound) → MONO (Regular sound)

When receiving an A2 (German) program

Broadcasting	On-screen display (Selected sound)
A2 (German) stereo	MONO (Regular sound) → STEREO (Stereo sound)
A2 (German) bilingual	MAIN (Main sound) → SUB (Sub sound)

Notes

- If the signal is very weak, the sound becomes monaural automatically.
- If the stereo sound is noisy when receiving a NICAM program, select "MONO". The sound becomes monaural, but the noise is reduced.

If the sound is distorted or noisy when receiving a monaural program through the ⅂ (antenna) terminal

Press A/B repeatedly until "MONO" appears on the screen.

To cancel the monaural sound setting, press A/B again until "AUTO" appears on the screen.

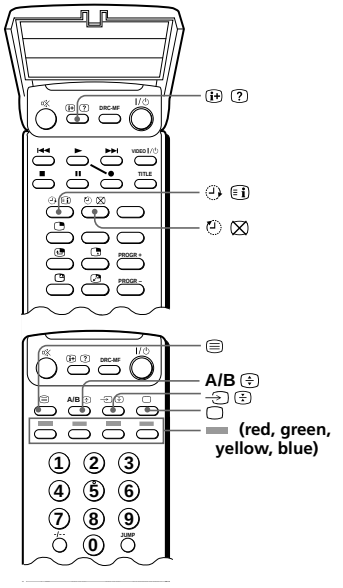
MONO → AUTO

Notes

- The "MONO" or "AUTO" setting is memorized for each program position.
- You cannot receive a stereo broadcast signal when the TV is in the "MONO" setting. Normally, set the TV to "AUTO".

Viewing Teletext

Some TV stations broadcast an information service called Teletext which allows you to receive various information, such as stock market reports and news.

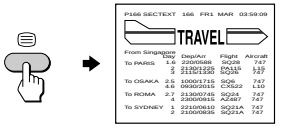


Displaying Teletext

1 Select a TV channel that carries the Teletext broadcast you want to watch.

2 Press ▤ to display the text.

A Teletext page (normally the index page) is displayed. If there is no Teletext broadcast, "100?" is displayed at the top left corner of the screen after approximately 10 seconds.



To turn off Teletext

Press 🖵.

Additional Teletext tasks

To	Do this
display a Teletext page on the TV picture	Press ☰. Each time you press ☰, the screen changes as follows: Teletext → Teletext and TV → TV.
check the contents of a Teletext service	Press ⓘ. An overview of the Teletext contents, including page numbers, appears on the screen.
select a Teletext page	Press the number buttons to enter the three-digit page number of the desired Teletext page.* If you make a mistake, reenter the correct page number. To access the next or previous page, press PROGR +/–.
hold (pause) a Teletext page (stop the page from scrolling)	Press ⏸ to display the symbol "⏸" at the top left corner of the screen. To resume normal Teletext viewing, press ⏸ or ☰.
reveal concealed information (e.g., an answer to a quiz)	Press ?. To conceal the information, press the button again.
enlarge the Teletext display	Press ⇕. Each time you press ⇕, the Teletext display changes as follows: Enlarge upper half → Enlarge lower half → Normal size.
stand by for a Teletext page while watching a TV program	1 Enter the Teletext page number that you want to refer to, then press ⊠. 2 When the page number is displayed, press ☰ to show the text.

* You can also select a Teletext page of any page number that appears in the colored column at the bottom of the screen using the corresponding color-coded button on the remote.

Using FASTEXT

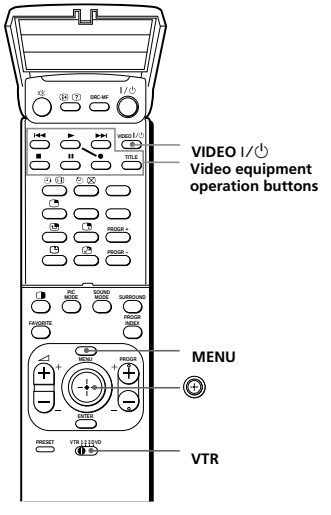
This feature allows you to quickly access a Teletext page that uses FASTEXT. When a FASTEXT program is broadcast, colored menus appear at the bottom of the screen. The color of each menu corresponds to the color-coded buttons on the remote (red , green , yellow , and blue).

To access a FASTEXT menu

Press the color-coded button on the remote corresponding to the menu you want. The menu page appears on the screen after a few seconds.

Operating optional components

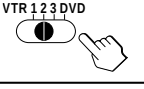
You can use the supplied remote to operate Sony video equipment such as Beta, 8 mm, VHS or DVD.



Setting up the remote to work with other connected equipment

Switch VTR to select the desired equipment type (see the chart below).

For example, to operate a Sony 8 mm VCR:



To control	Select
DVD	DVD
VTR1 (Beta)	1
VTR2 (8 mm)	2
VTR3 (VHS)	3

Notes

- If your video equipment is furnished with a COMMAND MODE selector, set this selector to the same position as the VTR switch.
- If the equipment does not have a certain function, the corresponding button on the remote will not operate.

Operating a VCR using the remote

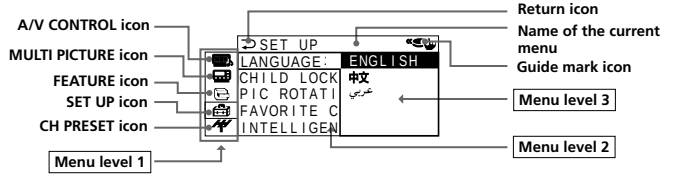
To	Press
turn on/off	VIDEO I/⏻
record	► while pressing ●.
play	►
stop	■
fast forward (▶▶)	▶▶I
rewind the tape (◀◀)	I◀◀
pause	❚❚ Press again to resume normal playback.
search the picture forward (▶▶) or backward (◀◀)	▶▶I or I◀◀ during playback. Release to resume normal playback.

Operating a DVD player using the remote

To	Press
turn on/off	VIDEO I/⏻
play	►
stop	■
pause	❚❚ Press again to resume normal playback.
step through different tracks of an audio disc	▶▶I to step forward or I◀◀ to step backward.
display the title menu	TITLE
display the menu	MENU while holding down ●.
select the menu item	Move ◎ up, down, left or right while holding down ●.

Introducing the menu system

The MENU button lets you open a menu and change the settings of your TV. The following is an overview of the menu system.



Level 1	Level 2	Level 3/Function
"A/V CONTROL"	"DRC-MF"	Select the "DRC-MF" mode: "DRC1250" → "DRC100"
	"PICTURE MODE"	Select the picture mode: "DYNAMIC" → "STANDARD" → "HI-FINE" → "PERSONAL" → "ADJUST"
	"ADJUST"	Adjust the "PERSONAL" option: "PICTURE" → "COLOR" → "BRIGHT" → "HUE" → "SHARP"
	"SOUND MODE"	Select the sound mode: "DYNAMIC" → "DRAMA" → "SOFT" → "PERSONAL" → "ADJUST"
	"ADJUST"	Adjust the "PERSONAL" option: "BASS" → "TREBLE" → "BALANCE" → "BBE"*
	"SURROUND"	Select the "SURROUND" mode: "□□ VIRTUAL" → "TruSurround" → "SIMULATED" → "OFF"
	"DIGITAL IN"	Activate or deactivate the digital audio input jack at the rear of your TV.
"MULTI PICTURE"	"PIP"	Activate or deactivate the PIP feature.
	"PIP POSITION"	Change the position of the sub screen.
	"SWAP"	Swap the pictures between the main and sub screens.
	"TWIN"	Display a TV program or video beside the main screen.
	"PROGRAM INDEX"	Display all the preset TV programs at the same time.
"FEATURE"	"WIDE MODE"	Activate or deactivate WIDE MODE feature.
	"ECO MODE"	Activate or deactivate ECO MODE feature.
	"GAME MODE"	Activate or deactivate GAME MODE feature.

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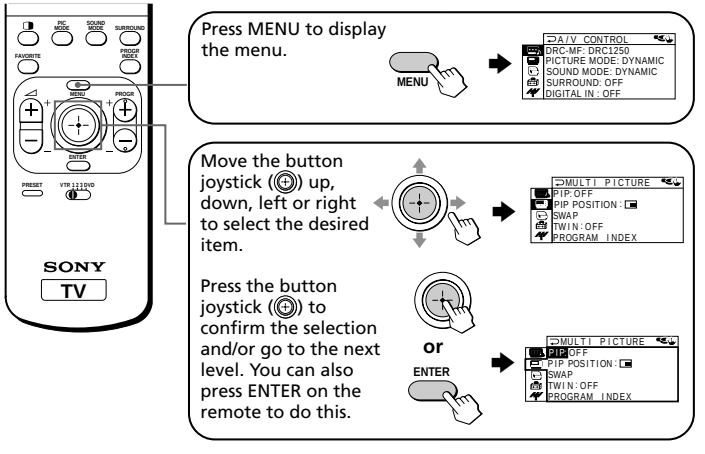
Level 1	Level 2	Level 3/Function
"SET UP"	"LANGUAGE"	Change the menu language: "ENGLISH" → "中文" (Chinese) → "عربي" (Arabic)
	"CHILD LOCK"	Lock out specific channels.
	"PIC ROTATION"	Rotate the picture.
	"FAVORITE CH"	Set favorite channels.
	"INTELLIGENT VOL"	Adjust the volume automatically.
"CH PRESET"	"AUTO PROGRAM"	Preset channels automatically.
	"MANUAL PROGRAM"	Preset channels manually.
	"SKIP"	Skip unwanted or unused program numbers.
	"TV SYS"	Select the TV system: "B/G" → "I" → "D/K" → "M"
	"COL SYS"	Select the color system: "AUTO" → " PAL" → "SECAM" → "NTSC3.58" → "NTSC4.43"

* The BBE is manufactured by Sony Corporation under license from BBE Sound, Inc. It is covered by U.S. Patent No. 4,638,258 and No. 4,482,866. The word "BBE" and the BBE symbol are the trademarks of BBE Sound, Inc.

How to use the menu



Other menu operations

To	Press/Move
Adjust the setting value	Move ⊕ up, down, left or right.
Move to the next/previous menu level	Move ⊕ left or right.
Cancel the menu	Press MENU.

Tips

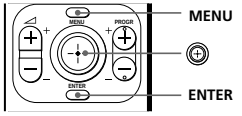
- If you want to exit from Menu level 2 to Menu level 1, move ⊕ up or down until the return icon (⮌) is highlighted, then press ⊕ or ENTER.
- The MENU, ENTER, and ◿ +/– buttons on the TV can also be used for the operations above.

Note

- If more than 60 seconds elapse between entries, the menu screen automatically disappears.

continued

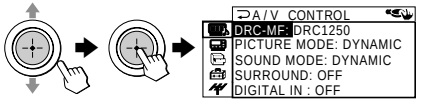
Changing the "A/V CONTROL" setting



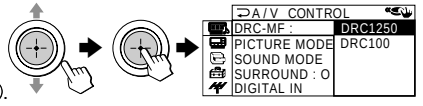
The "A/V CONTROL" menu allows you to adjust the picture and sound settings.

1 Press MENU.

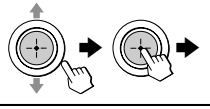
2 Move ⊕ up or down to select , then press ⊕.



3 Move ⊕ up or down to select either "DRC-MF", "PICTURE MODE", "SOUND MODE", "SURROUND", or "DIGITAL IN", then press ⊕.



4 Move ⊕ up or down to select the desired option, then press ⊕.



For	Select
"DRC-MF"	either "DRC1250" or "DRC100".
"PICTURE MODE"	either "DYNAMIC", "STANDARD", "HI-FINE", "PERSONAL"*, or "ADJUST".
"SOUND MODE"	either "DYNAMIC", "DRAMA", "SOFT", "PERSONAL"*, or "ADJUST".
"SURROUND"	either "DD VIRTUAL", "TruSurround", "SIMULATED", or " OFF".
"DIGITAL IN"	either "ON" or "OFF".

* When the "PERSONAL" mode is selected, the last adjusted picture/sound settings from the "ADJUST" option are received (see page 32).

Tip

- For details on the options under the "DRC-MF", "PICTURE MODE"/ "SOUND MODE", "SURROUND" and "DIGITAL IN" modes, see pages 15, 14, 21 and 33 respectively.

To return to the normal screen

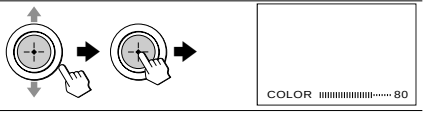
Press MENU.

continued

Changing the "A/V CONTROL" setting (continued)

Adjusting the "ADJUST" options under "PICTURE MODE"

1 Move ⊕ up or down to select the desired item (e.g., "COLOR"), then press ⊕.



2 Adjust the value according to the following table, then press ⊕.

For	Move ⊕ down or left to	Move ⊕ up or right to
"PICTURE"	decrease picture contrast	increase picture contrast
"COLOR"	decrease color intensity	increase color intensity
"BRIGHT"	darken the picture	brighten the picture
"HUE"*	increase red picture tones	increase green picture tones
"SHARP"	soften the picture	sharpen the picture

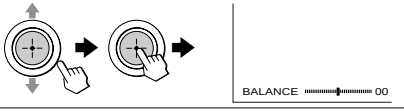
* You can adjust "HUE" for the NTSC color system only.

3 Repeat the above steps to adjust other items.

The adjusted settings will be received when you select "PERSONAL".

Adjusting the "ADJUST" options under "SOUND MODE"

1 Move ⊕ up or down to select the desired item (e.g., "BALANCE"), then press ⊕.



2 Adjust the value according to the following table, then press ⊕.

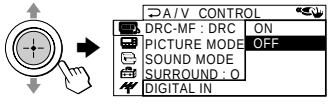
For	Move ⊕
"BASS"	down or left to decrease the bass, up or right to increase the bass.
"TREBLE"	down or left to decrease the treble, up or right to increase the treble.
"BALANCE"	down or left to increase the left speaker's volume, up or right to increase the right speaker's volume.
"BBE"	up or down to select "HIGH", "LOW", or "OFF". "BBE" can produce clear sound.

3 Repeat the above steps to adjust other items.

The adjusted settings will be received when you select "PERSONAL".

Setting the "DIGITAL IN" options

1 In the "DIGITAL IN" menu, move ⊕ up or down to select the desired option (see table below).



Select	To
"ON"	receive digital audio signal through DIGITAL IN (component video input) jack.
"OFF"	receive analog audio signal through L and R (component video input) jack.

2 Press ⊕ to confirm the selected option.

Note

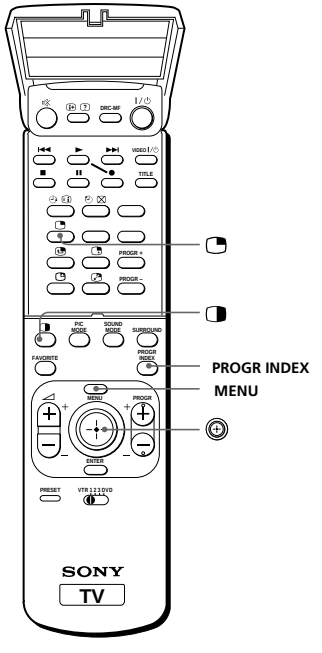
- Your TV can only receive Dolby Digital or Linear PCM format digital signals through the DIGITAL IN (component video input) jack (see page 7). Receiving any other format digital signal may cause unwanted noise or no sound from the speakers.

Tip

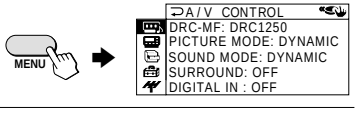
- For details on the menu system and how to use the menu, refer to "Introducing the menu system" on page 28.

Changing the "MULTI PICTURE" setting

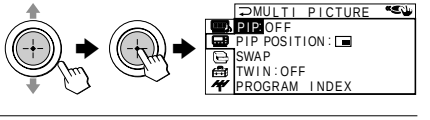
The "MULTI PICTURE" menu allows you to use the Picture-in-Picture (PIP), TWIN pictures, or PROGRAM INDEX features.



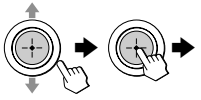
1 Press MENU.

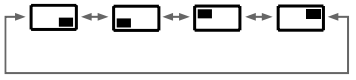


2 Move ⊕ up or down to select , then press ⊕.



3 Move ⊕ up or down to select the desired option (see the table below), then press ⊕.



Select	To
"PIP"	display the PIP screen within the main picture. Move ⊕ up or down to select "ON", then press ⊕. To cancel, press ◔ or select "OFF", then press ⊕.
"PIP POSITION"	change the position of the PIP screen. Move ⊕ up or down to select the desired position, then press ⊕. 
"SWAP"	swap the main and PIP screens, or right and left pictures of the TWIN pictures.
"TWIN"	display a different TV program or video beside the main picture. Move ⊕ up or down to select "ON", then press ⊕. To cancel, press ◑ or select "OFF", then press ⊕.
"PROGRAM INDEX"	view multiple programs on the sub-screens. To cancel, press PROGR INDEX.

To return to the normal screen

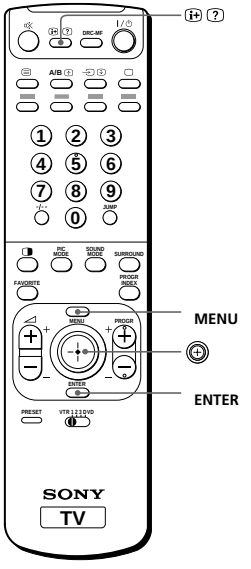
Press MENU.

Tip

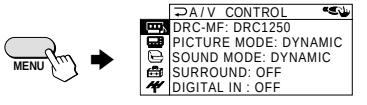
- For details on the menu system and how to use the menu, see "Introducing the menu system" on page 28.

Changing the "FEATURE" setting

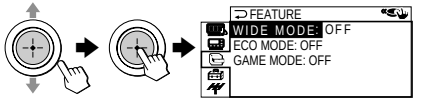
The "FEATURE" menu allows you to change the size of the picture on the screen when receiving wide mode (16:9) picture signals. You can also adjust the picture setting that is suitable for viewing video games, and reduce the power consumption of your TV.



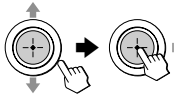
1 Press MENU.

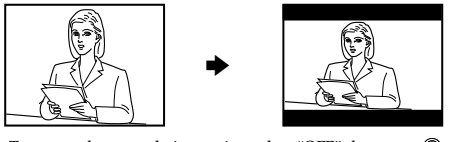


2 Move ⊕ up or down to select 🖼, then press ⊕.



3 Move ⊕ up or down to select the desired option (see the table below), then press ⊕.



Select	To
"WIDE MODE"	change the size of the picture when receiving wide-mode (16:9) picture signal. Move ⊕ up or down to select "ON", then press ⊕.  To restore the normal picture size, select "OFF" then press ⊕.
"ECO MODE"	reduce power consumption of your TV to save energy. Move ⊕ up or down to select "ON", then press ⊕. To cancel, select "OFF", then press ⊕.
"GAME MODE"	adjust the picture setting that is suitable to view video games. Move ⊕ up or down to select "ON", then press ⊕. To cancel, select "OFF", then press ⊕.

Notes

- When you turn on "ECO MODE", the picture may become dimmer. Turning "ECO MODE" off will restore the picture to its original setting.
- "WIDE MODE" and "GAME MODE" is available only when receiving signals through the (video input), (S video input), or (component video input) jacks at the side and rear of your TV.
- If "ECO MODE" is on, the ECO MODE ( ) icon will appear at the bottom right corner of the screen when you turn on the TV or when you press on the remote (see pages 10 and 11).

To return to the normal screen

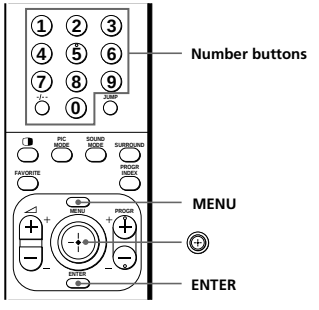
Press MENU.

Tip

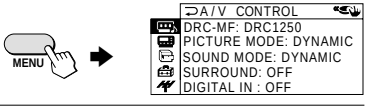
- For details on the menu system and how to use the menu, see "Introducing the menu system" on page 28.

Changing the "SET UP" setting

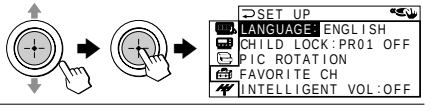
The "SET UP" menu allows you to: change the menu language, block channels, adjust the picture position, program your favorite channels, and adjust the volume automatically.



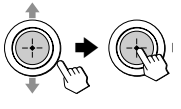
1 Press MENU.

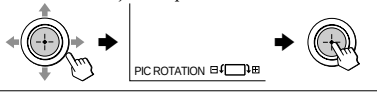


2 Move ⊕ up or down to select , then press ⊕.



3 Move ⊕ up or down to select the desired option, then press ⊕.



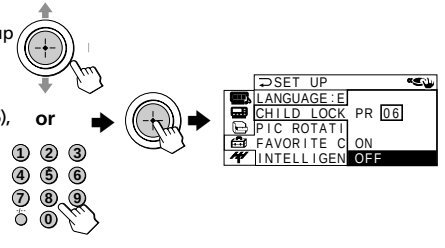
Select	To
"LANGUAGE"	change the menu language (see page 12).
"CHILD LOCK"	block channels (see page 39).
"PIC ROTATION"	adjust the picture position when it is not aligned with the TV screen. Move ⊕ up or right to adjust the position clockwise, then press ⊕. Move ⊕ down or left to adjust the position counter clockwise, then press ⊕. 
"FAVORITE CH"	select your favorite channels (see pages 16 and 40).
"INTELLIGENT VOL"	adjust the volume of all TV programs automatically. Move ⊕ up or down to select "ON", then press ⊕. To cancel, select "OFF", then press ⊕.

To return to the normal screen

Press MENU.

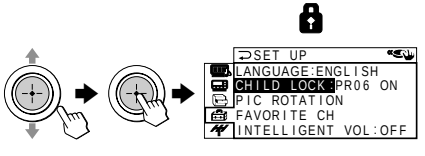
Blocking channels (“CHILD LOCK”)

1 After selecting “CHILD LOCK”, either move ⊕ up or down, or press the number buttons (or PROGR +/–) to select the desired channel (e.g. PR 06), then press ⊕.

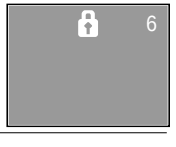


2 Move ⊕ up or down to select “ON”, then press ⊕. To unlock the channel, select “OFF”.

The lock symbol (🔒) appears on the screen when “ON” is selected.



If a locked channel is selected, the lock symbol appears on the screen.



3 Repeat steps 1 and 2 to lock other channels.

To return to the normal screen

Press MENU.

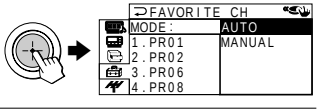
Note

- If you preset a locked channel, that channel will be unlocked automatically (see page 41).

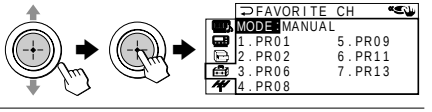
continued

Changing the favorite channel setting

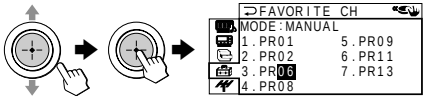
1 After selecting “FAVORITE CH”, make sure “MODE” is selected, then press ⊕.



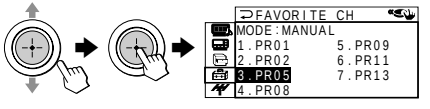
2 Move ⊕ up or down to select “MANUAL”, then press ⊕.



3 Move ⊕ up or down to select the program you want to change, then press ⊕.



4 Move ⊕ up or down to change the number, then press ⊕.



5 Repeat steps 3 and 4 to set other channels.

To return to the normal screen

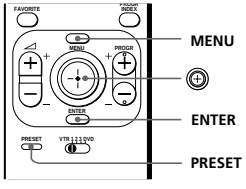
Press MENU.

Note

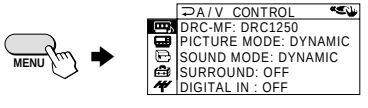
- If you press the PROGR +/– buttons or number buttons in step 4 above, the TV will display the channel immediately.

Changing the "CH PRESET" setting

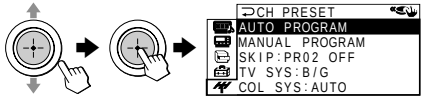
The "CH PRESET" menu allows you to adjust the setup of your TV. For example, you can manually tune in a channel with a weak signal that fails to be tuned in by automatic presetting.



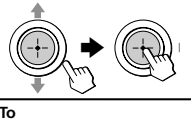
1 Press MENU.



2 Move ⊕ up or down to select ✓, then press ⊕.



3 Move ⊕ up or down to select the desired option, then press ⊕.



Select	To
"AUTO PROGRAM"	preset channels automatically.
"MANUAL PROGRAM"	preset channels manually. See "Presetting channels manually" on page 42.
"SKIP"	skip unwanted or unused channels. 1 Either move ⊕ up or down, or press the number buttons (or PROGR +/–) until the unused or unwanted channel number appears, then press ⊕. 2 Select "ON", then press ⊕. 3 To disable other channels, repeat steps 1 and 2. To restore the skipped channel, select "OFF" in step 2.
"TV SYS"	select the TV system.
"COL SYS"	select the color system. Normally, set this to "AUTO".

To return to the normal screen

Press MENU.

Tip

- For details on the menu system and how to use the menu, refer to "Introducing the menu system" on page 28.

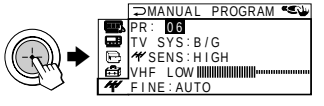
continued

Changing the "CH PRESET" setting (continued)

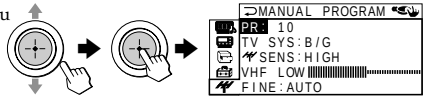
Presetting channels manually

1 After selecting "MANUAL PROGRAM", select the program number to which you want to preset a channel.

(1) Make sure "PR" is selected, then press ⊕.



(2) Move ⊕ up or down until the program number you want to preset (e.g., program number "10") appears on the menu, then press ⊕.

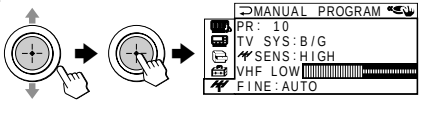


Tips

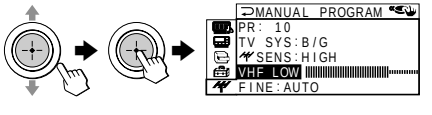
- You can also select the "MANUAL PROGRAM" menu directly by pressing the PRESET button on the remote.
- You can also select the program number with the PROGR +/– or number buttons.

2 Select the desired channel.

(1) Move ⊕ up or down to select either "VHF LOW", "VHF HIGH", or "UHF", then press ⊕.

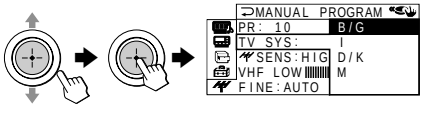


(2) Move ⊕ up or down until the desired channel's broadcast appears on the TV screen, then press ⊕.

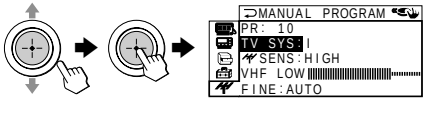


3 If the sound of the desired channel is abnormal, select the appropriate TV system.

(1) Move ⊕ up or down to select "TV SYS", then press ⊕.

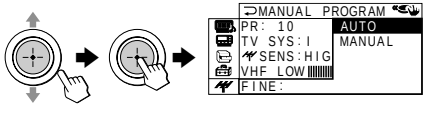


(2) Move ⊕ up or down until the sound becomes normal, then press ⊕.

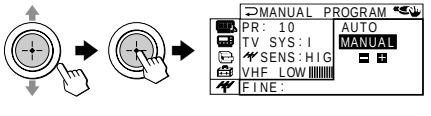


4 If you are not satisfied with the picture and sound quality, you may be able to improve them by using the "FINE" tuning feature.

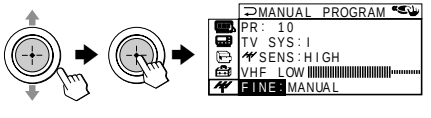
(1) Move ⊕ up or down to select "FINE", then press ⊕.



(2) Move ⊕ up or down to select "MANUAL", then press ⊕.

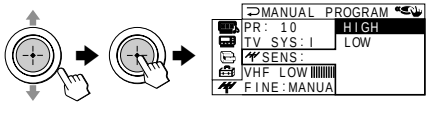


(3) Move ⊕ either up, down, left or right until the picture and sound quality are optimal, then press ⊕. The + or – icon on the menu flashes while tuning.

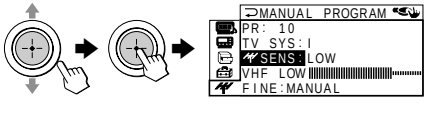


5 If the TV signal is too strong and the picture is distorted, you can adjust the TV reception sensitivity.

(1) Move ⊕ up or down to select "SENS", then press ⊕.



(2) Move ⊕ up or down to select "LOW", then press ⊕.



To return to the normal screen

Press MENU.

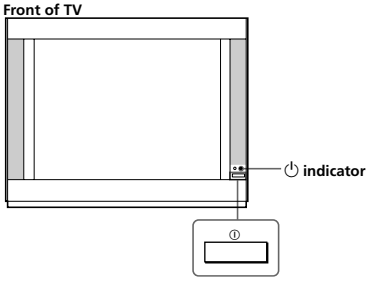
Notes

- The TV system ("TV SYS") and the TV reception sensitivity ("SENS") settings are memorized for each program number.
- If you preset a locked channel, that channel will be unlocked automatically (see page 39).

Additional Information

Self-diagnosis function

Your TV is equipped with a self-diagnosis function. If there is a problem with your TV, the ⏻ (standby) indicator flashes red. The number of times the ⏻ indicator flashes indicates the possible causes.



1 Check that the ⏻ indicator flashes red a number of times between 3-second intervals.

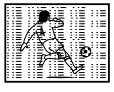
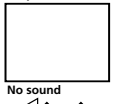
2 Count the number of times the ⏻ indicator flashes.

3 Press ⏻ (main power) to turn off your TV.

4 Inform your nearest Sony service center about the number of times the ⏻ indicator flashed.
Be sure to note the model name and serial number located on the rear of your TV.

Troubleshooting

If you have any problem while viewing your TV, please check the following troubleshooting guide. If the problem persists, contact your Sony dealer.

Symptom	Possible cause	Solutions	Page
Snowy picture 	• The connection is loose or the cable is damaged.	• Check the antenna cable and connection on the TV, VCR and at the wall.	4
	• Channel presetting is inappropriate or incomplete.	• Press the PRESET button to display the “MANUAL PROGRAM” menu and preset the channel again.	42
Noisy sound	• The antenna type is inappropriate.	• Check the antenna type (VHF/UHF). Contact a Sony dealer for advice.	–
	• The antenna direction needs adjustment.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
	• Signal transmission is low.	• Try using a booster.	–
Distorted picture	• Broadcast signals are too strong.	• Press the PRESET button to display the“MANUAL PROGRAM” menu. Then, select “ SENS: LOW”.	43
		• Turn off or disconnect the booster if it is in use.	–
Noisy sound			
Good picture	• The TV system setting is inappropriate.	• If the sound of all the channels are noisy, display the “CH PRESET” menu and select “AUTO PROGRAM” to preset the channels again.	41
Noisy sound		• If the sound of some channels is noisy, select the channel, then display the “CH PRESET” menu and select the appropriate TV system (“TV SYS”).	42
	• The digital audio signal is inappropriate.	• Set “DIGITAL IN: OFF” in the “A/V CONTROL” menu and connect L and R (component video input) on your TV to receive analog audio signals.	7, 33
No picture 	• The power cord, antenna or VCR is not connected.	• Check the power cord, antenna and the VCR connections.	4
No sound	• The TV is not turned on.	• Press I/⏻ (power).	10
		• Press ⏻ (main power) on the TV to turn off the TV for about five seconds, then turn it on again.	11

continued

Troubleshooting (continued)

Symptom	Possible cause	Solutions	Page
Good picture	• The volume level is too low.	• Press + to increase the volume level.	11
	• The sound is muted.	• Press to cancel the muting.	11
	• The broadcast signal has a transmission problem.	• Press A/B until a better sound is heard.	22
No sound	• The digital audio signal is inappropriate.	• Set “DIGITAL IN: OFF” in the “A/V CONTROL” menu and connect L and R (component video input) on your TV to receive analog audio signals.	7, 33
	• The “DIGITAL IN” setting in the “A/V CONTROL” menu is inappropriate.	• When connecting to (component video input) on your TV, set “DIGITAL IN: ON” to receive digital audio signals through DIGITAL IN, or set “DIGITAL IN: OFF” to receive analog audio signals through L and R.	33
Dotted lines or stripes	• There is local interference from cars, neon signs, hair dryers, power generators, etc.	• Do not use a hair dryer or other equipment near the TV.	–
		• Adjust the antenna direction for minimum interference. Contact a Sony dealer for advice.	–
Double images or “ghosts”	• Broadcast signals are reflected by nearby mountains or buildings.	• Use a highly directional antenna.	–
		• Use the fine tuning (“FINE”) function.	43
	• The antenna direction needs adjustment.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
	• Use of a booster is inappropriate.	• Turn off or disconnect the booster if it is in use.	–
No color	• The color level setting is too low.	• Display the “A/V CONTROL” menu and select “ADJUST” of “PICTURE MODE”, then adjust the “COLOR” level.	32
	• The color system setting is inappropriate.	• Display the “CH PRESET” menu and check the color system (“COL SYS”) setting (usually set this to “AUTO”).	41
	• The antenna direction needs adjustment.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
Abnormal color patches	• The magnetic disturbance from external speakers or other equipment, or the direction of the earth’s magnetic field may affect the TV.	• Locate external speakers or other equipment away from the TV. Do not move the TV while the TV is turned on. Press ⏻ (main power) on the TV to turn off the TV for about five minutes, then turn it on again.	–

Symptom	Possible cause	Solutions	Page
TV cannot receive stereo broadcast signal.	• The stereo reception setting is inappropriate.	• Press A/B until "AUTO" appears on the screen.	22
Stereo broadcast sound switches on and off or is distorted.	• The connection is loose or the cable is damaged.	• Check the antenna cable and connection on the TV, VCR and on the wall.	4
	• The antenna direction needs adjustment.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
or **The sound switches between stereo and monaural frequently.**	• The broadcast signal has a transmission problem.	• Press A/B until a better sound is heard.	22
"100?" appears at the top of the screen after approximately 10 seconds and there is no Teletext display.	• The channel carries no Teletext broadcast.	—	24
Teletext display is incomplete (snowy picture or double images).	• Connection is loose or the cable is damaged.	• Check the antenna cable and connection on the TV, VCR, and at the wall.	4
	• The antenna direction is inappropriate.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
	• Signal transmission is too low.	• Try using a booster. • Use the fine tuning (FINE) function.	– 43
Picture slant	• Terrestrial magnetism is affecting your TV set.	• Display the "SET UP" menu and adjust "PIC ROTATION" so that the picture is aligned to the TV screen.	38
Lines moving across the TV screen.	• There is interference from external sources, e.g., heavy machineries, nearby broadcast station.	• Use the fine tuning ("FINE") function.	43
The ⏻ indicator on your TV flashes red a number of times between 3-second intervals.	• Your TV may need servicing.	• Contact your nearest Sony service center.	44

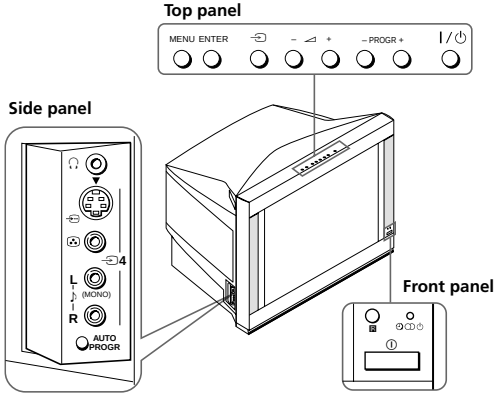
continued

Symptom	Possible cause	Solutions	Page
TV cabinet creaks.	• Changes in room temperature sometimes make the TV cabinet expand or contract, causing a noise. This does not indicate a malfunction.	—	–
A small "boom" sound is heard when the TV is turned on.	• The TV's demagnetizing function is working. This does not indicate a malfunction.	—	–
Static discharge is felt when touching the TV cabinet.	• This is the same static discharge that is felt when touching metal door handles or car doors especially when the air is dry, for example in winter. This does not indicate a malfunction.	—	–

KV-ES29M61/ES29N90
RM-916 RM-958

Identifying parts and controls

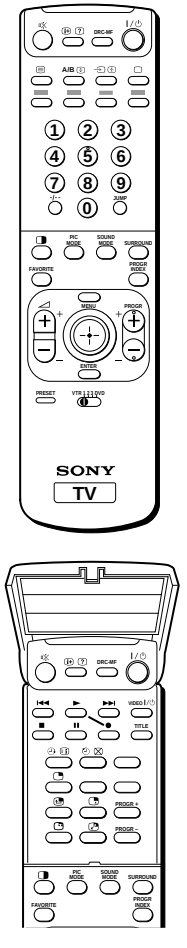
Front, top and side panels



Button	Function	Page
Side panel		
🎧	Headphone jack.	–
AUTO PROGR	Preset channels automatically.	5
Front panel		
⏻	Turn off completely or turn on the TV.	10
Top panel		
I / ⏻	Turn off temporarily or turn on the TV.	10
PROGR +/–	Select program number.	10
+/–	Adjust volume.	11
→	Select TV or video input.	11
ENTER	Confirm selected items.	30
MENU	Display the menu.	30

continued

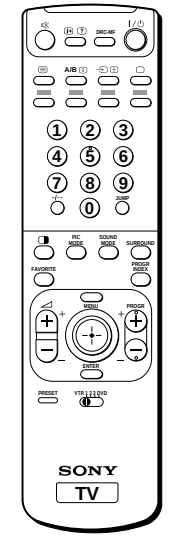
Remote control

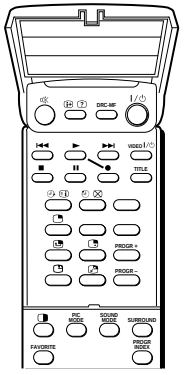


The names/symbols of buttons on the remote are indicated in different colors to represent the available functions.

Label color	Button function
White	For general TV operations
Green	For Teletext operations
Yellow	For PIP operations

Button	Function	Page
I / ⏻	Turn off temporarily or turn on the TV.	10
PROGR +/–	Select program number.	10
0 – 9, -/--	Input numbers.	10
i+	Display on-screen information.	11
🔇	Mute the sound.	11
▢	Display the TV program.	11
→	Select TV or video input.	11
+/–	Adjust volume.	11
JUMP	Jump to previous channel.	11
Timer operations		
	Set TV to turn on automatically.	13
	Set TV to turn off automatically.	13
SOUND MODE	Select sound mode.	14
PIC MODE	Select picture mode.	14
DRC-MF	Select DRC-MF mode.	15
Favorite Channel operations		
FAVORITE	Display favorite channels.	16
◎	Select desired channel.	16
PIP and Twin picture operations		
	Display the PIP screen.	17
	Display TWIN pictures.	17
◎	Adjust Twin picture size.	18
PROGR +/ PROGR –	Change program in PIP/ Twin picture.	18
	Select video input for PIP/ Twin picture.	18
	Swap main and PIP/Twin picture.	18
	Freeze PIP screen.	18
	Adjust position of PIP screen.	18

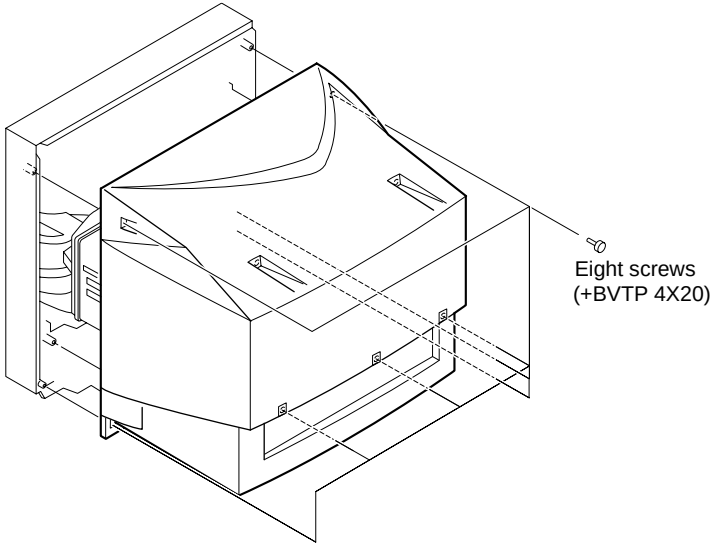




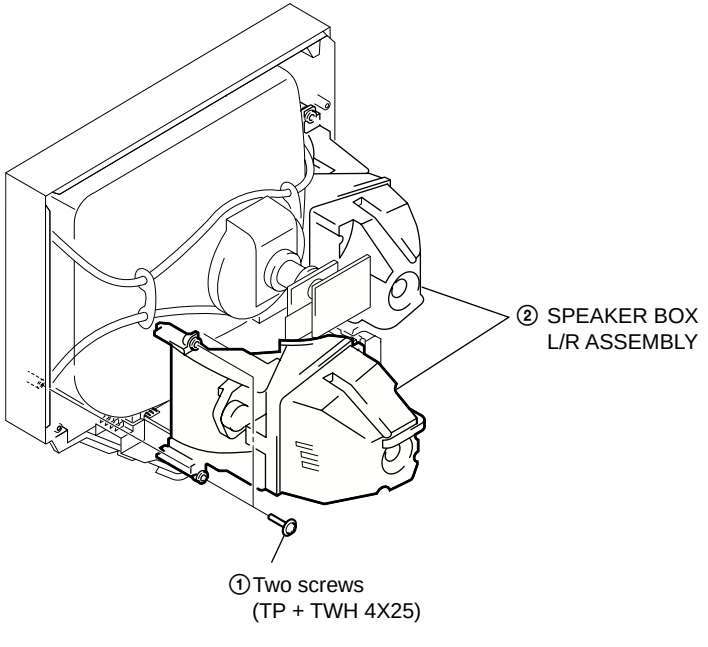
Button	Function	Page
Program Index operations		
PROGR INDEX	Display all preset TV programs.	19
PROGR +/–	View next/previous 12 TV programs.	20
◎	Select desired channel.	20
SURROUND	Select surround mode.	21
Stereo/bilingual operations		
A/B	Select stereo/bilingual mode.	22
Teletext operations		
▤	Display Teletext broadcast.	24
▤i	Display Teletext service contents.	25
⊜	Stop Teletext page from scrolling.	25
?	Reveal concealed information.	25
⊕	Enlarge the Teletext display.	25
⊠	Show TV screen while waiting for Teletext page.	25
0 - 9	Input Teletext page number.	25
PROGR +/–	Display the next or previous page.	25
▬ (red, green, yellow, blue)	Access a FASTEXT menu.	25
Optional components operations		
VTR	Set up the remote.	26
VIDEO I / ⏻	Power.	27
TITLE	Display the title menu.	27
►	Play.	27
▶▶I	Fast forward/Search forward.	27
I◀◀	Rewind/Search backward.	27
●	Record.	27
■	Stop.	27
❚❚	Pause.	27
Menu operations		
MENU	Display the menu.	30
◎	Select, adjust and confirm selected items.	30
ENTER	Confirm selected items.	30
PRESET	Display “MANUAL PROGRAM” menu.	42

SECTION 2
DISASSEMBLY

2-1. REAR COVER REMOVAL

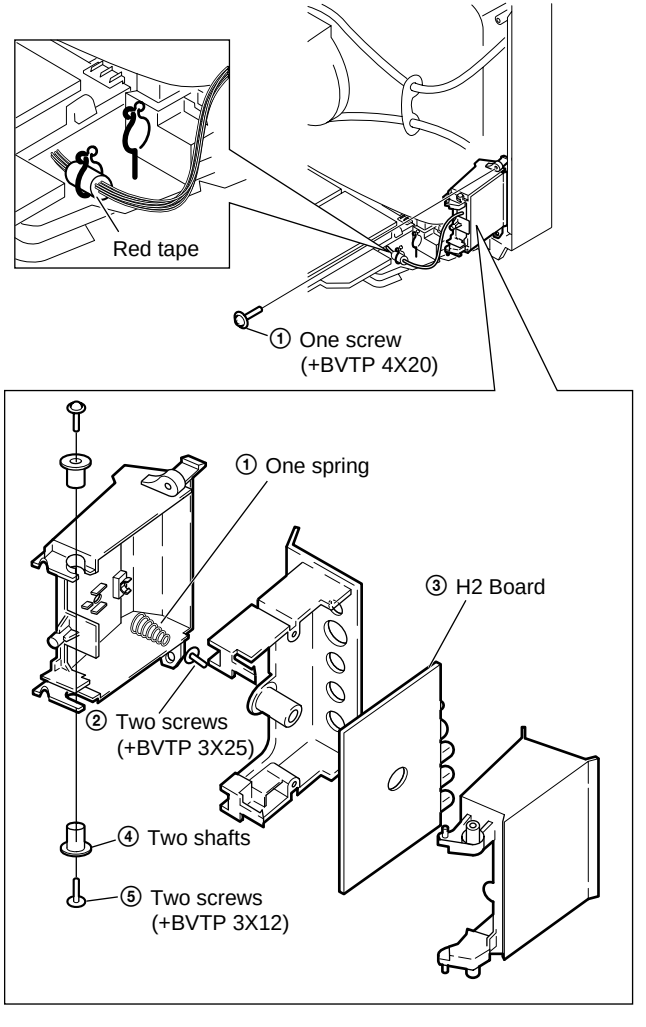


2-2. SPEAKER BOX REMOVAL

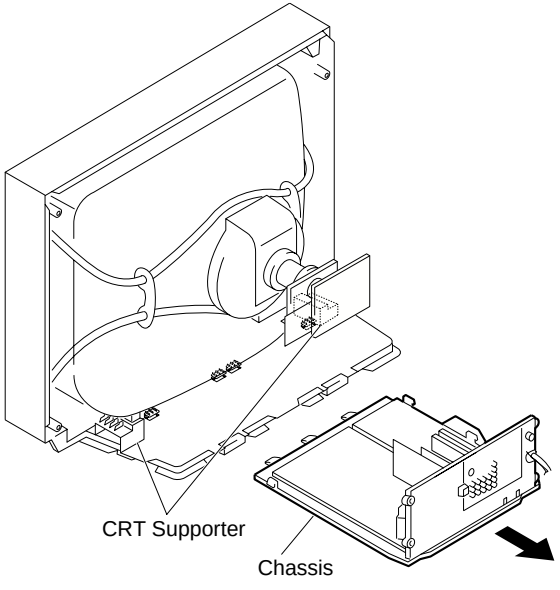


2-3. H2 BOARD REMOVAL

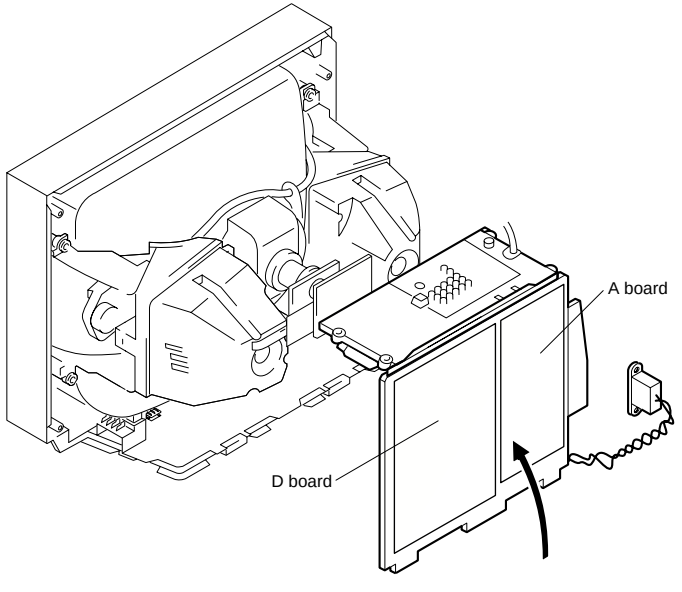
Caution: Please make sure that the red colour taped point is just placed with the purse lock when treating the leads to H2 board. If lead treatment is wrongly arranged, it will affect the door opening and closing malfunction.



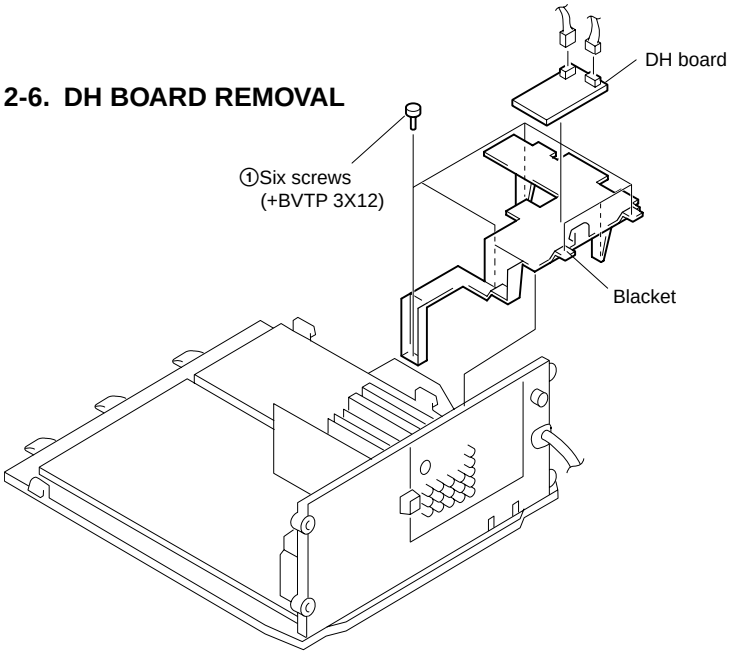
2-4. CHASSIS ASSY REMOVAL



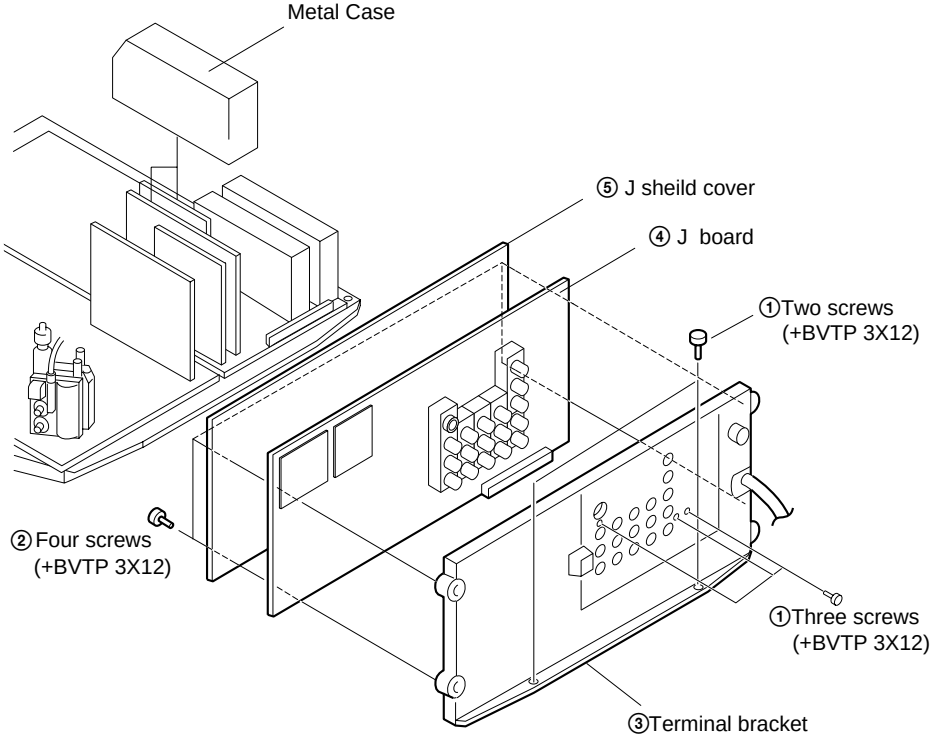
2-5. SERVICE POSITION



2-6. DH BOARD REMOVAL

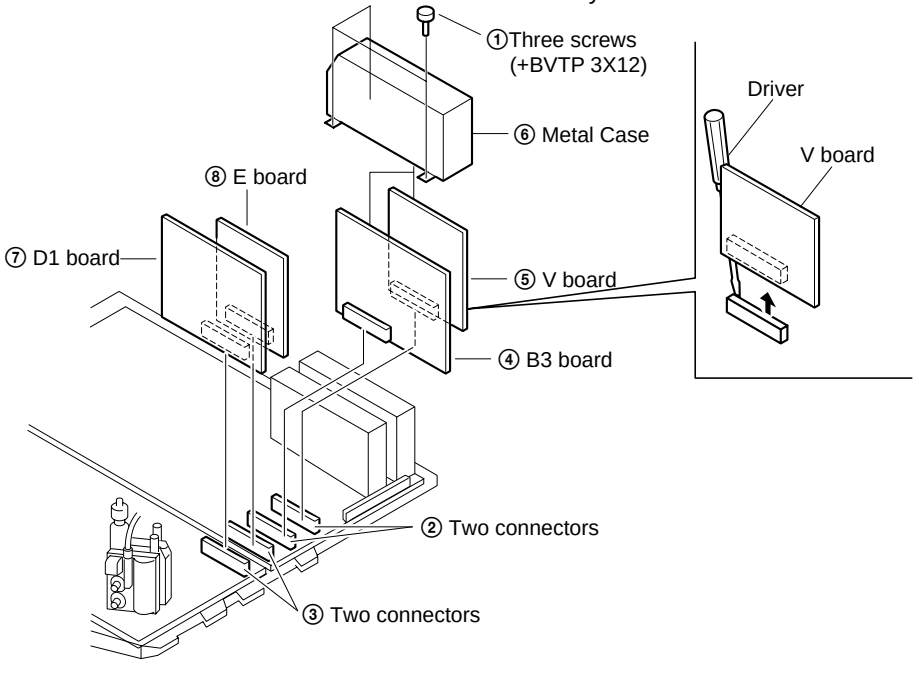


2-7. J BOARD REMOVAL

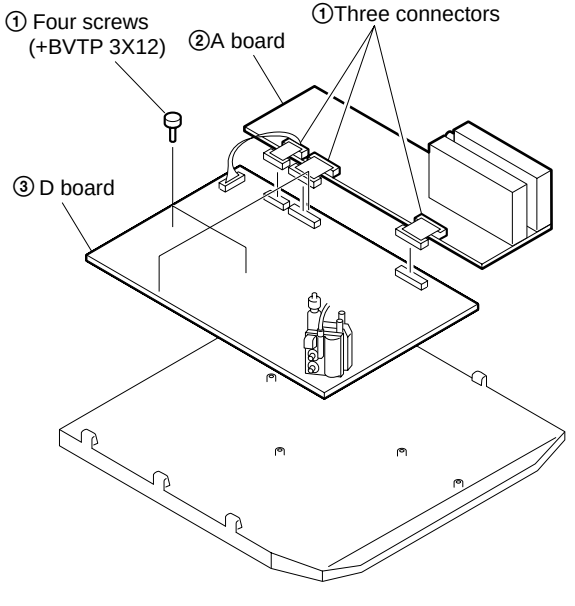


2-8. B3, D1 AND E BOARDS REMOVAL

NOTE : V Board is used for model KV-ES29M61 only.

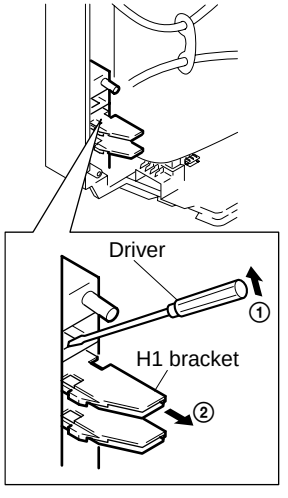


2-9. A AND D BOARDS REMOVAL



2-10. H1 BOARD REMOVAL

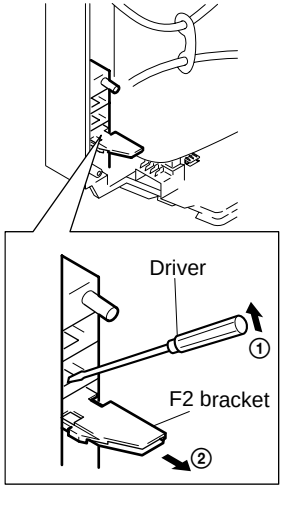
NOTE : Push the hook down using the tip of a screwdriver and at the same time pull the H1 bracket.



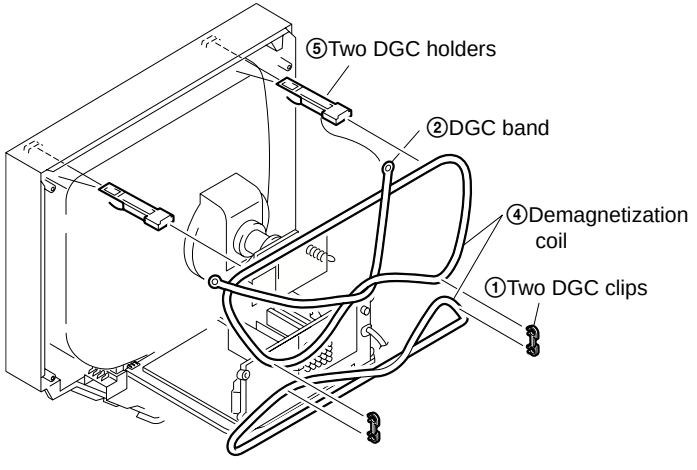
2-11. F2 BOARD REMOVAL

NOTE : To remove F2 board, firstly remove the H1 board. Then, push the hook down using the tip of a screwdriver and at the same time pull the F2 bracket.

Caution : When removing the F2 board, please turn off the main AC supply and disconnect the AC plug.

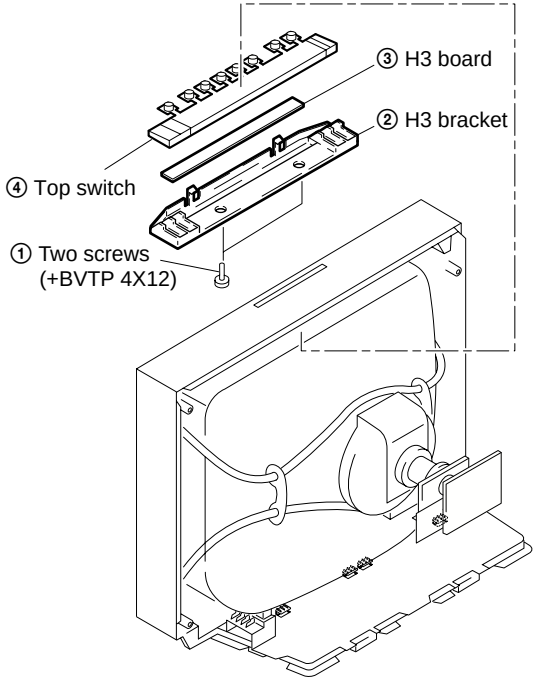


2-12. DEMAGNETIZATION COIL REMOVAL



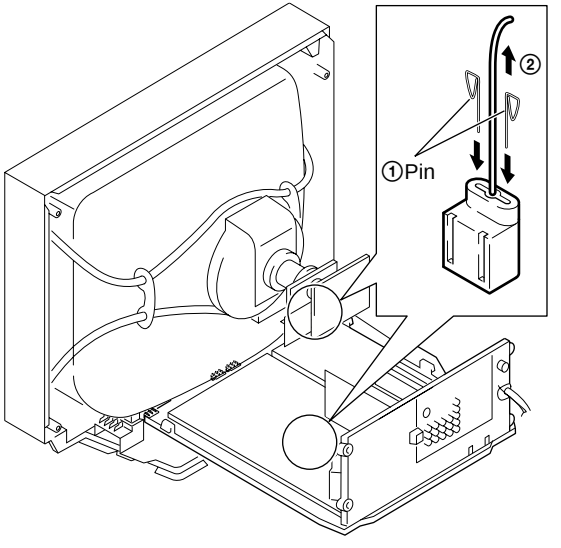
2-13. TOP SWITCH REMOVAL (H3 BOARD REMOVAL)

NOTE : To remove H3 board, the CRT has to be removed first.



2-14. G2 LEAD REMOVAL

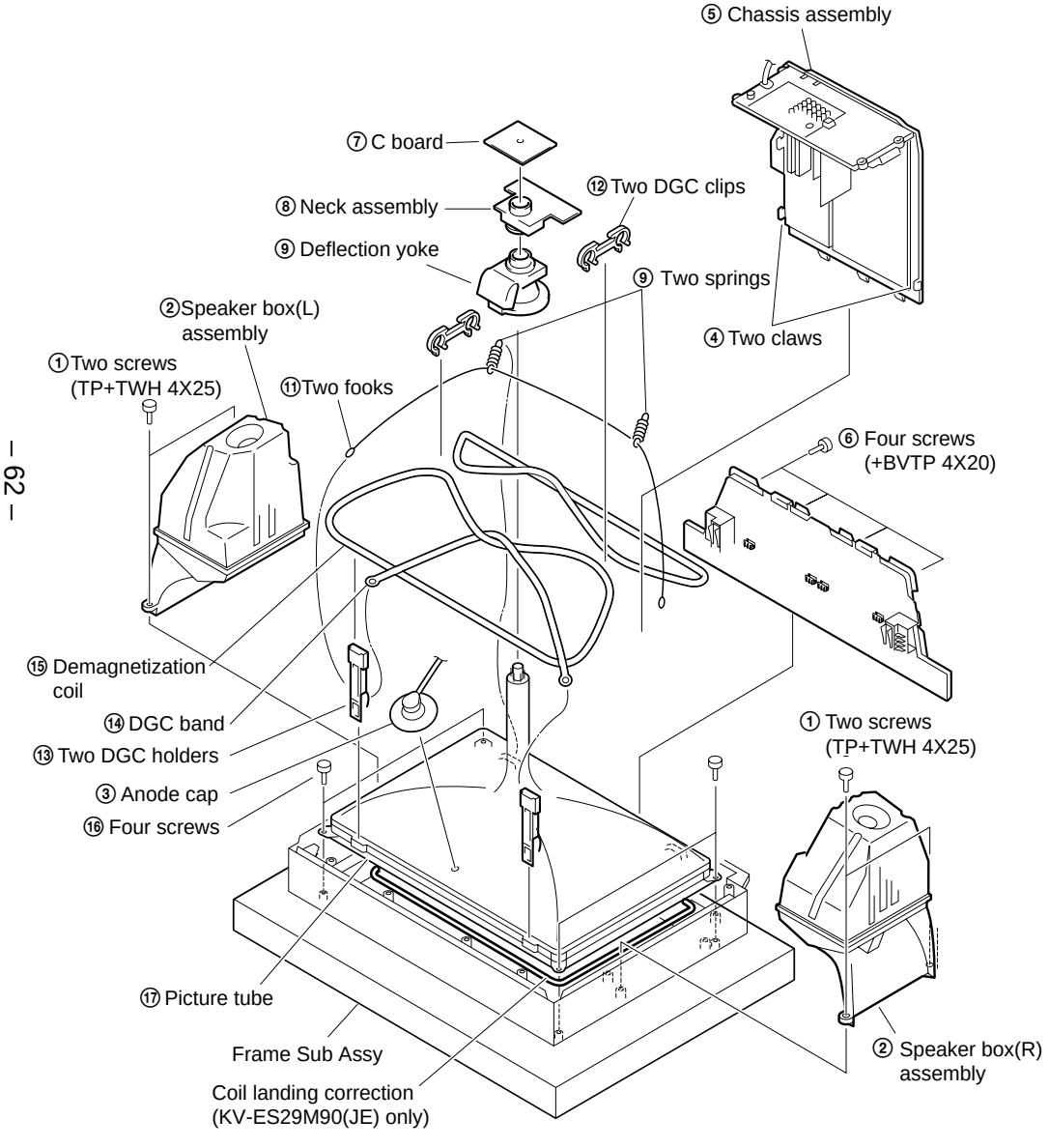
NOTE : Insert pin to both edge holes on socket and release the lock.



2-15. PICTURE TUBE REMOVAL

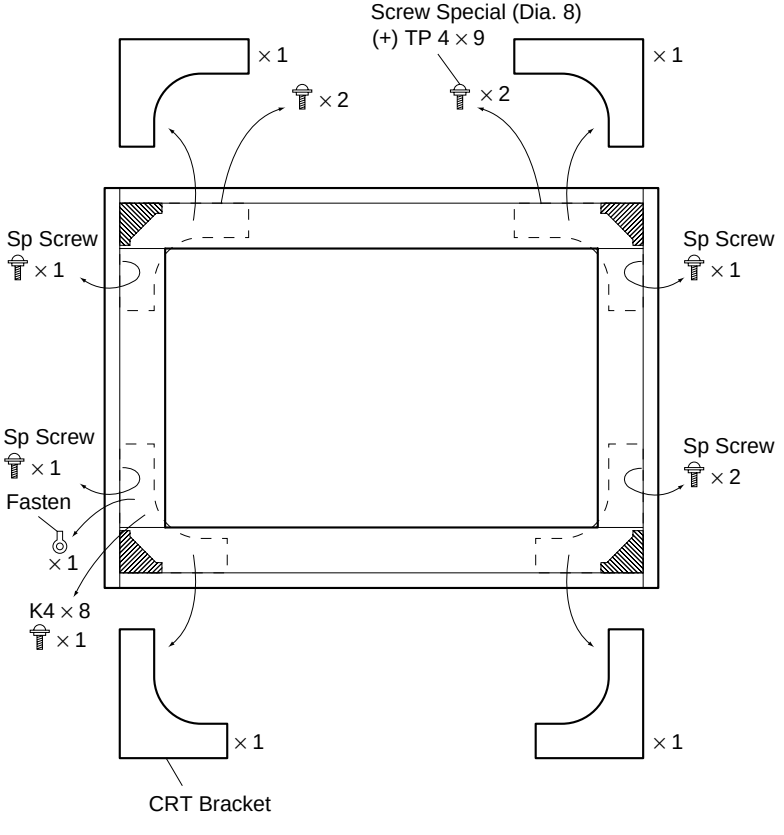
NOTE :i) Prior to picture tube removal, please remove the front cover first.

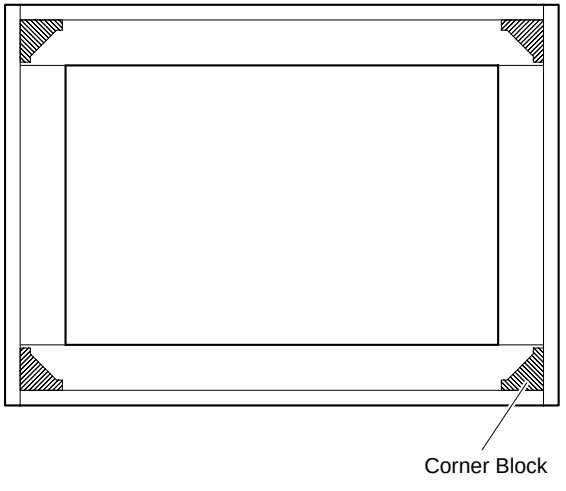
Caution : Aluminium frame is easily scratched if extra caution is not taken when handling it.



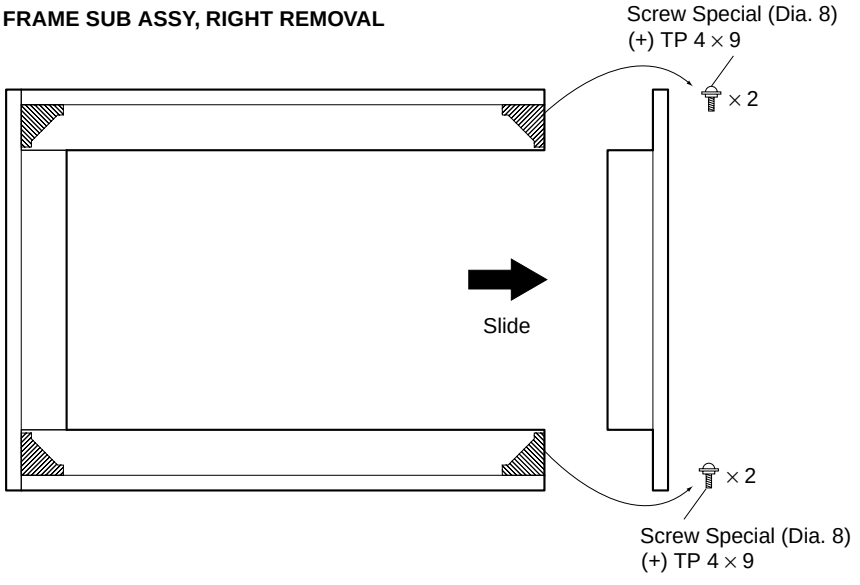
2-16. FRAME SUB-ASSY DISASSEMBLY

①

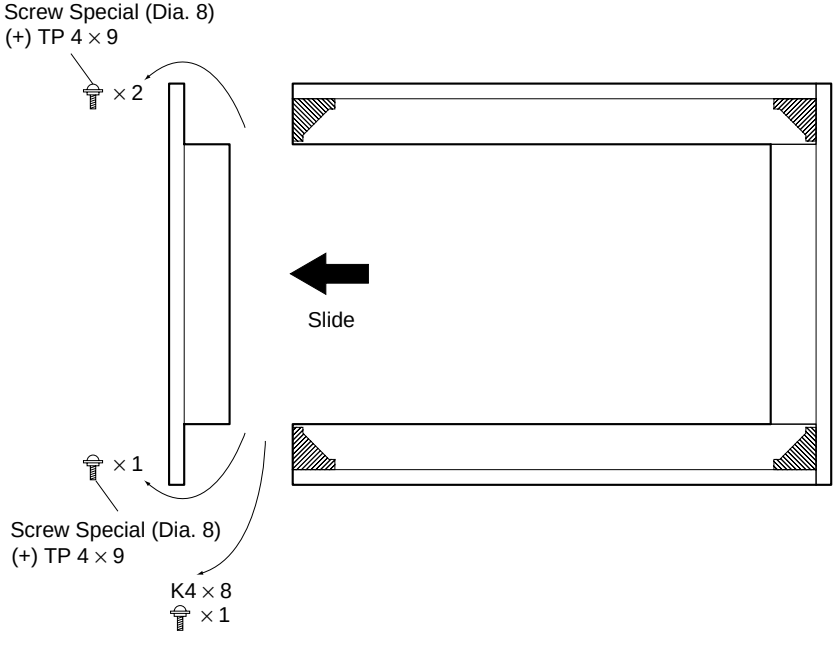




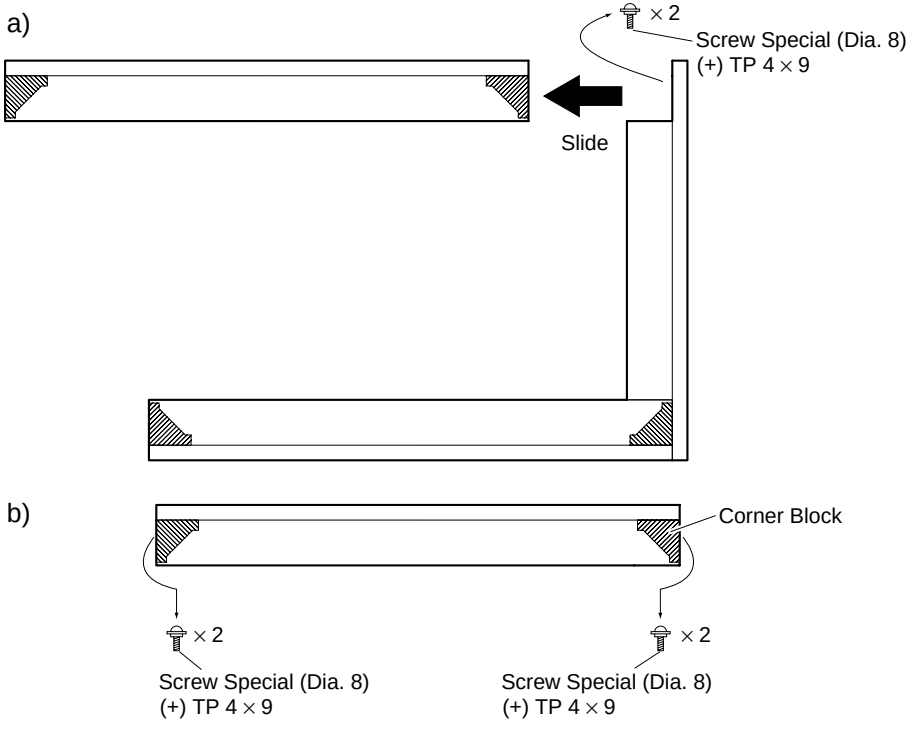
FRAME SUB ASSY, RIGHT REMOVAL



FRAME SUB ASSY, LEFT REMOVAL

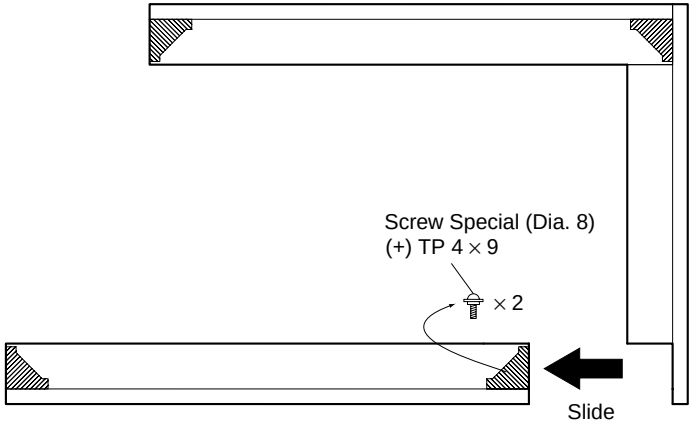


FRAME SUB ASSY, TOP REMOVAL

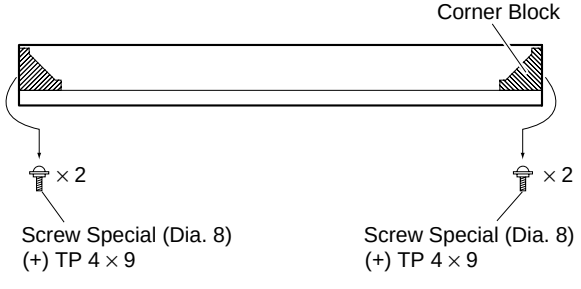


FRAME SUB ASSY, BOTTOM REMOVAL

a)



b)

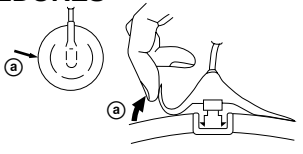


NOTE : When replacing the Frame Sub-Assy Top and Bottom, fix the original corner block to the new part.

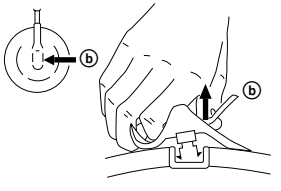
• REMOVAL OF ANODE-CAP

NOTE : After removing the anode, short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT.

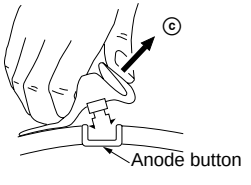
• REMOVING PROCEDURES



① **Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.**



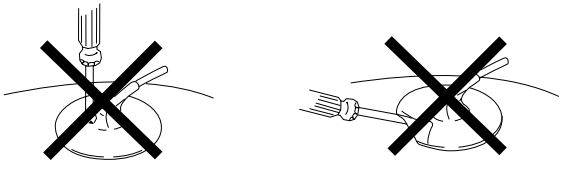
② **Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.**



③ **When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ.**

• HOW TO HANDLE AN ANODE-CAP

① **Do not damage the surface of anode-caps with sharp shaped objects.**
② **Do not press the rubber too hard so as not to damage the inside of anode-cap. A metal fitting called the shatter-hook terminal is built into the rubber.**
③ **Do not turn the foot of rubber over too hard. The shatter-hook terminal will stick out or damage the rubber.**

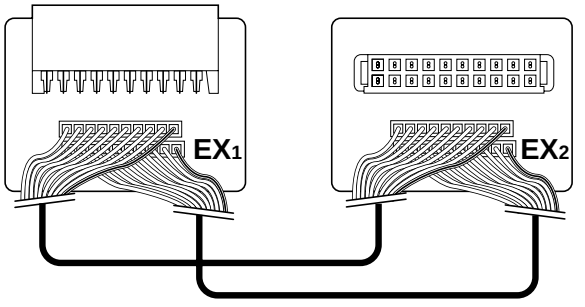


SECTION 3
SERVICE JIG

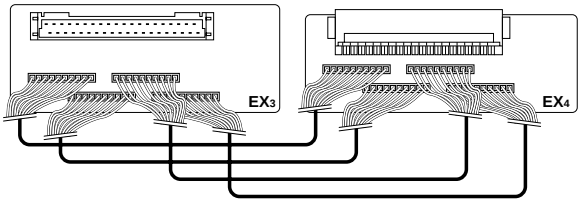
3-1. JIGS REQUIRED FOR SERVICING

REF NO.	DESCRIPTION	PART NO.	REMARK
J-1	TOOL (20P), SERVICE	3-702-763-01	For A to V board extension
J-2	TOOL (40P), SERVICE	3-702-764-01	For A to E board extension
J-3	TOOL (50P-A), SERVICE	3-702-765-01	For A to B3 board extension
J-4	TOOL (50P-J), SERVICE	3-702-766-01	For A to J board extension For D to D1 board extension

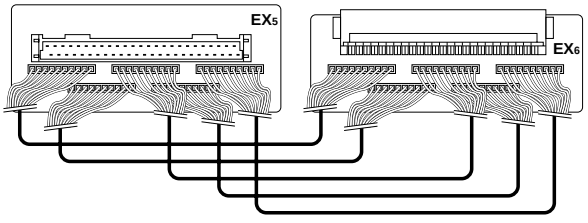
J-1



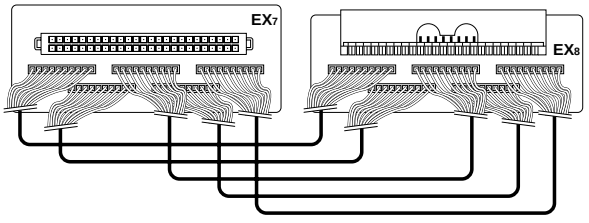
J-2



J-3



J-4



SECTION 4
SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switches should be set as follows unless otherwise noted:
PICTURE control ..... normal
BRIGHTNESS control ..... normal

Perform the adjustments in the following order :

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note : Test Equipment Required.

1. Color-bar/Pattern Generator
2. Degausser
3. Oscilloscope

Preparation :

- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

4-1. BEAM LANDING

1. Input a white signal with the pattern generator.
   Contrast } normal
   Brightness }
2. Position neck assy as shown in Fig4-1.
3. Set the pattern generator raster signal to a green raster.
4. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side.
   (See Figures 4-1 through 4-3.)
5. Move the deflection yoke forward and adjust so that the entire screen is green. (See Figure 4-2.)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws and DY spacers.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it.
   (See Figure 4-4.)

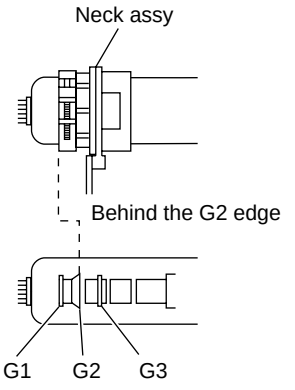


Fig. 4-1

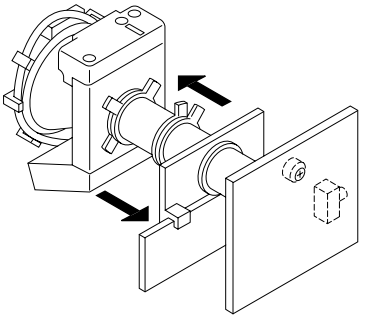


Fig. 4-2

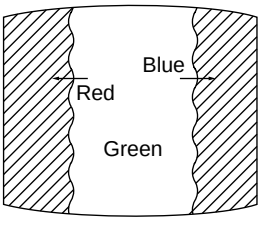


Fig. 4-3

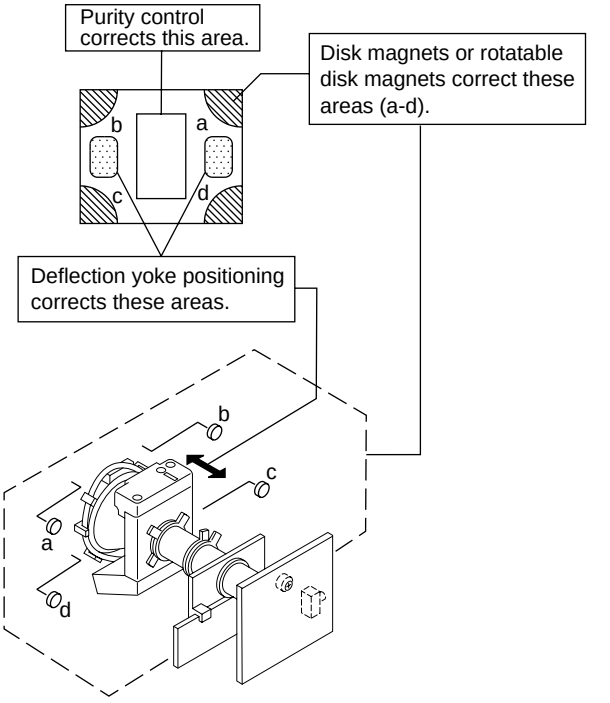


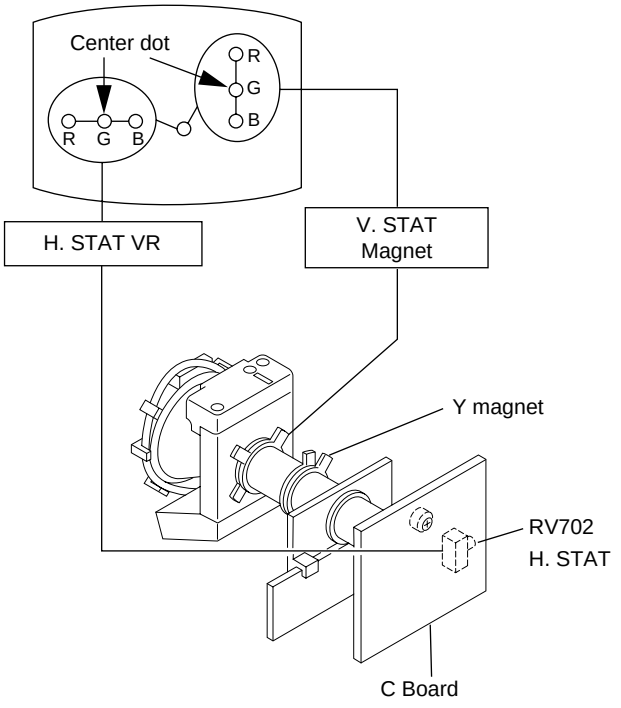
Fig. 4-4

4-2. CONVERGENCE ADJUSTMENT

Preparation :

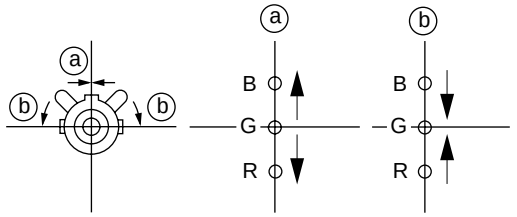
- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Set the PICTURE 70% and BRIGHTNESS 0%.
- Cross hatch / Dot pattern.

(1) Horizontal and Vertical Static Convergence

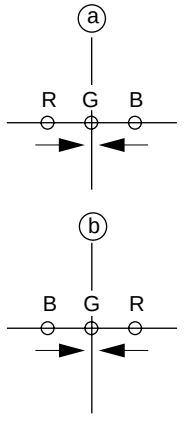


1. (Moving horizontally), adjust the H.STAT control so that the red, green and blue dots are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green and blue dots are on top of each other at the center of the screen.
3. Adjust Horizontal Trapezoid with “DAC 04 HTR” in Service Mode to make H-Trapezoid distortion best.
4. If the H.STAT variable resistor cannot bring the red, green and blue dots together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other, so be sure to perform adjustments while tracking.)

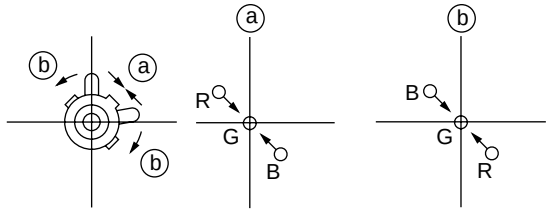
① V. STAT

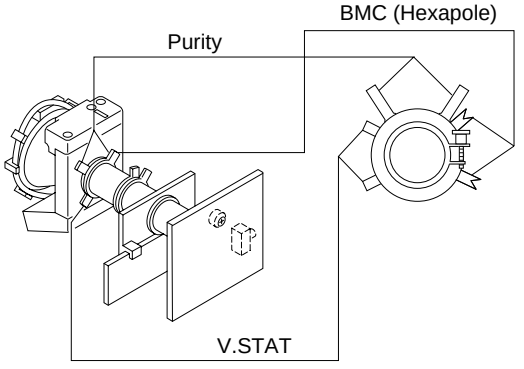


② H. STAT VR



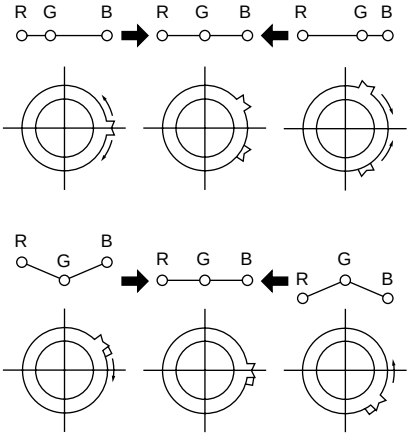
③





④ BMC (Hexapole) Magnet.

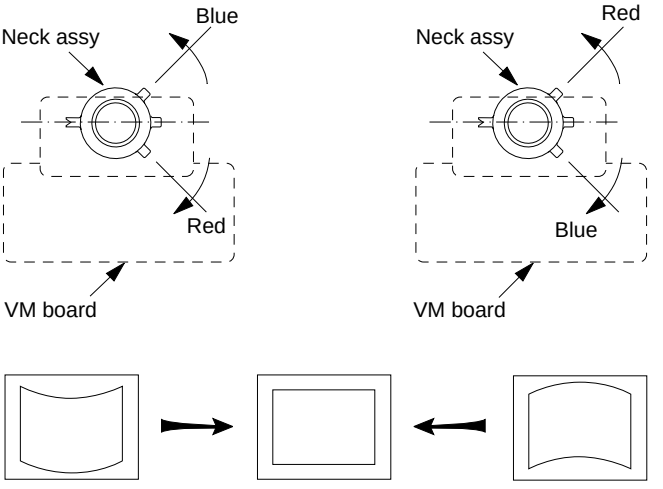
If the red, green and blue dots are not balanced or aligned, then use the BMC magnet to adjust in the manner described below.



⑤ Y separation axis correction magnet adjustment.

1. Receive the cross-hatch signal and adjust [PICTURE] to [MIN] and [BRIGHTNESS] to [STANDARD] .

2. Adjust the Y separation axis correction magnet on the neck assembly so that the horizontal lines at the top and bottom of the screen are straight.



Note

1. The Red and Blue magnets should be equally far from the horizontal center line.
2. Do not separate the Red and Blue magnets too far. (Less than 8 mm)

(2) Dynamic Convergence Adjustment

Preparation:

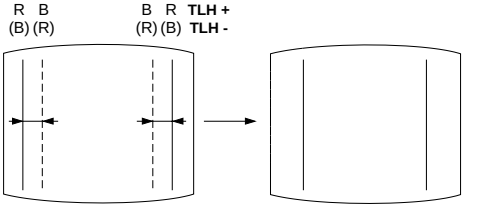
- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence
- Set the PICTURE and BRIGHTNESS to normal.

1. Adjust TLH. (TLH correction piece)

① Receive the dot/hatch pattern signal and adjust picture quality by the menu.

② Correct horizontal mis-convergence of red and blue of both sides on the X axis.

When red is outside insert BMC magnet to right side (THL+) views from DY neck. And when blue is outside, insert it to left side (THL–) and take both sides.



2. Adjust XCV core.

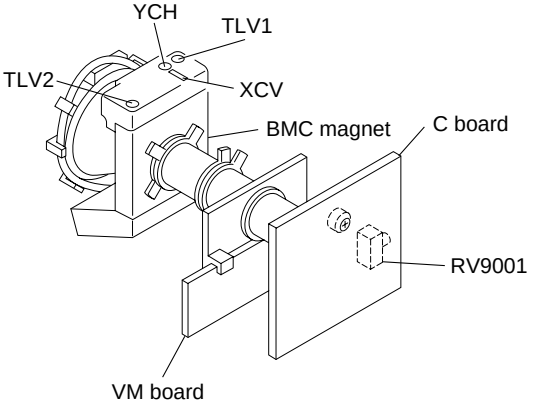
To able to become balance of XCV on the X axis well.

3. Adjust V-TILT.

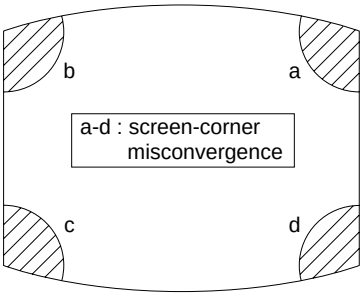
Correct the vertical mis-convergence of red and blue of vertically sides on the Y axis.

4. Adjust YCH.

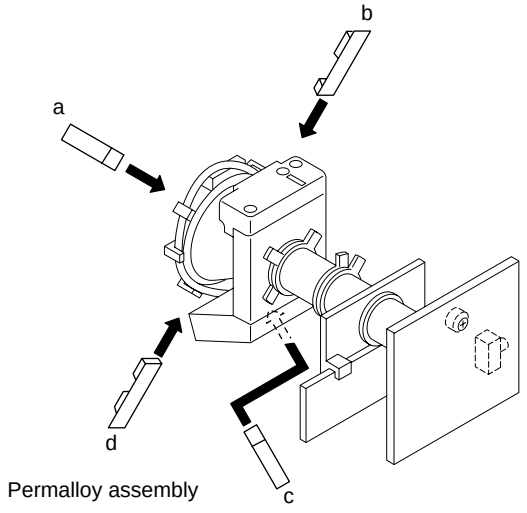
Adjust horizontal mis-convergence of red and blue of vertically sides on the Y axis. Mentioned above steps 2 to 4 are adjusting respectively perform minuteness tracking.



(3) Screen-corner Convergence



Fix a Permalloy assy corresponding to the misconverged areas.

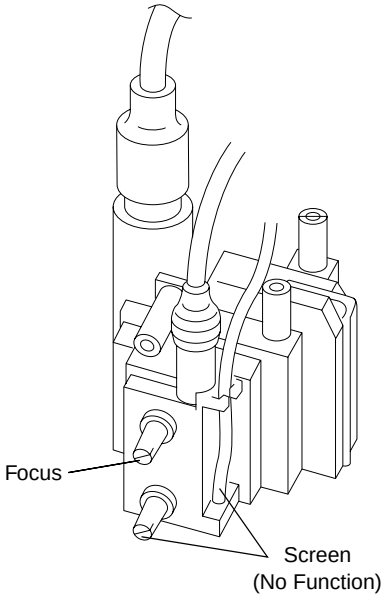


4-3. FOCUS ADJUSTMENT

Note

Focus adjustment should be completed before W/B adjustment.

(1) Receive digital monoscope pattern.
(2) Set "A/V CONTROL" to "STANDARD".
(3) Adjust FOCUS VR so that the center of the screen becomes justfocus.
(4) Change the receiving signal to white pattern and blue back.
(5) Confirm MAGENTA RING should not be over the limit sample. In case MAGENTA RING is over the limit sample, adjust FOCUS VR to take tracking of MAGENTA RING and FOCUS.



FLYBACK TRANSFORMER (T6803)

4-4. NECK ASSY TWIST ADJUSTMENT

(1) Receive dot/hatch pattern.
(2) Turn FOCUS VR fully counter-clockwise.
(3) Confirm the dot shape at the screen center. (Fig. 4-4)
(4) Resume FOCUS VR.

Note

In case of turning NECK ASSY, loosen the screw 3 turns. Do not move the position.

OK

Turn NECK ASSY clockwise.

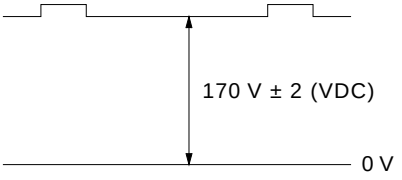
Turn NECK ASSY counter clockwise.

Fig. 4-4

4-5. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

1. G2 (SCREEN) ADJUSTMENT

1) Set the PICTURE and BRIGHTNESS to normal.
2) Put to VIDEO input mode without signals.
3) Connect R, G and B of the C board cathode to the oscilloscope.
4) Adjust BRIGHTNESS to obtain the cathode voltage to the value below.
5) Whilst watching the picture, adjust the screen VR (RV9002) located on the C board to the point just before the flyback return lines disappear (to the point before cut-off)



2. WHITE BALANCE ADJUSTMENT

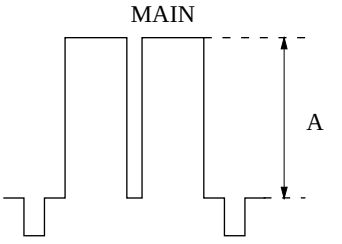
1) Set to Service Mode (Refer Section 4-1: ADJUSTMENTS WITH COMMANDER).
2) Input white raster signal.
3) Set the following condition.
   PICTURE minimum, BRIGHTNESS 50%
4) Select GCT (WHB 7) and BCT (WHB 8) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
5) Set the PICTURE to maximum.
6) Select GDR (WHB 4) and BDR (WHB 5) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
7) Write into the memory by pressing [MUTING] then [0].

3. SUB PICTURE BRIGHTNESS ADJUSTMENT

1) Tune RF PAL white signal at program No. 1 and No. 2.
2) Select “TWIN PICTURE” mode.
3) Receive different RF PAL white signals in MAIN and Sub picture.
4) Adjust RV3300 on A PWB, so that the output from the 17 pin and 20 pin of the CN1180 becomes within the spec.

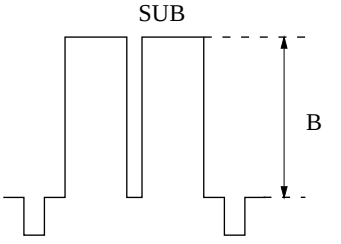
CVBS 1

17 pin



CVBS 2

20 pin



Spec: |A - B| ≤ ± 20mV

SECTION 5
CIRCUIT ADJUSTMENTS

5-1. ADJUSTMENTS WITH COMMANDER

Service adjustments are made with the RM-916 and RM-958 that comes with this unit.

a. ENTERING SERVICE MODE

With the unit on standby
↓
[DISPLAY]
↓
[5]
↓
[VOL (+)]
↓
[POWER]

This operation sequence puts the unit into service mode.

b. METHOD OF CANCELLATION FROM SERVICE MODE

Set the standby condition (Press [POWER] button on the commander), then press [POWER] button again, hereupon it becomes TV mode.

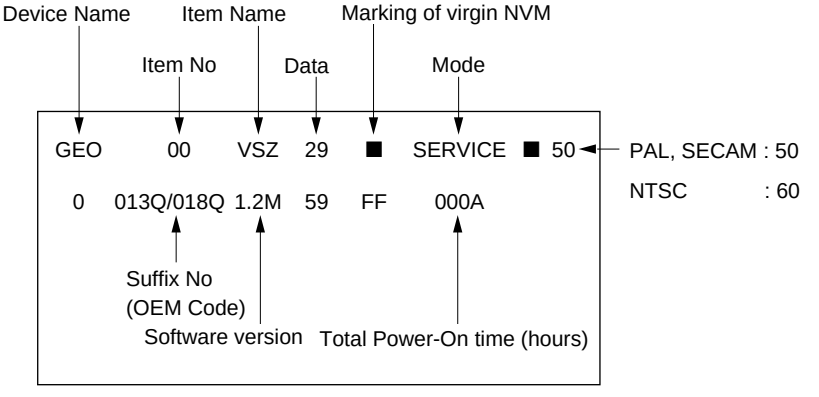
c. METHOD OF WRITE INTO MEMORY

1) Set to Service Mode.
2) Press [1] (UP) and [4] (DOWN), select an item of adjustment.
3) Press [MUTING] button and it will indicate WRITE on the screen.
4) Press [0] button to write into memory.

d. MEMORY WRITE CONFIRMATION METHOD

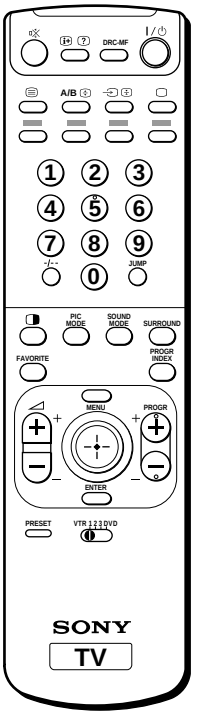
1) After adjustment, pull out the plug from AC outlet, and then plug into AC outlet again.
2) Turn the power switch ON and set to Service Mode.
3) Call the adjusted items again to confirm adjustments were made.

The screen display is :

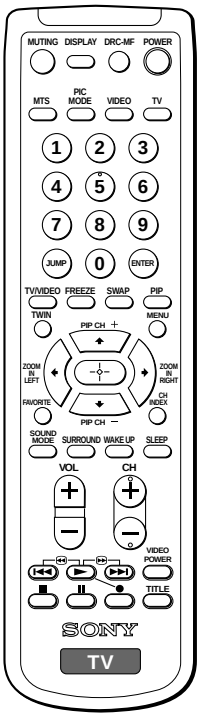


[1], [4]	Select the adjustment item.
↓	
[3], [6]	Raise/lower the data value.
↓	
[MUTING]	Writes.
↓	
[0]	Executes the writing.

[7], [0]	All the data becomes the values in memory.
[8], [0]	All user control goes to the standard state.
[5], [0]	Service data initialization (Be sure not to use usually.)
[DISPLAY], [0]	Write 50Hz adjustment data to 60Hz, or vice versa.
[2], [0]	Copy and write all data.



RM-916



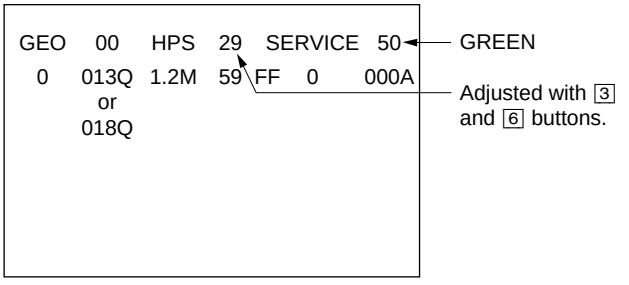
RM-958

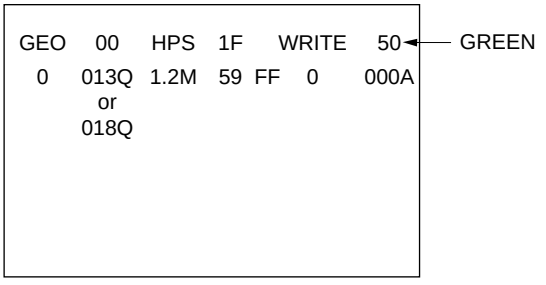
5-2. ADJUSTMENT METHOD

Item Number 00 of device GEO

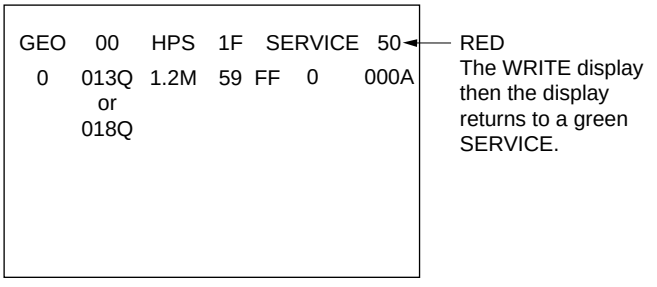
This explanation uses H-Position as an example.

1. Select “GEO 00 VSZ” with the [1] and [4] buttons.
2. Raise/lower the data with the [3] and [6] buttons.
3. Select the optimum state. (The standard is 1F for PAL reception.)
4. Write with the [MUTING] button. (The display changes to WRITE.)
5. Execute the writing with the [0] button. (The WRITE display will be changed to red color while excuting, and back to SERVICE.)





Written with [MUTING]



Write executed with [0]

Use the same method for all Items. Use [1] and [4] to select the adjustment item, use [3] and [6] to adjust, write with [MUTING], then execute the write with [0].

Note : 1. In [WRITE], the data for all items are written into memory together.

2. For adjustment items that have different standard data between 50Hz or 60Hz, be sure to use the respective input signal after adjustment.
3. Additional function to skip category (device) to category (device).
   example:
   GEO 00 HPS
   ↕
   DAC 00 XXX
   The buttons for the function above should be cursor +/–.

SERVICE LIST ITEM

TVG	Functionality		Function	50								60								Eco Mode				Device Name
Category	No.	Name		DRC 1250	DRC 1250 V	PinP	PinP V	INDEX	TWIN	DRC 100	DRC 100 V	DRC 1250	60 VC	PinP	PinP V	INDEX	TWIN	DRC 100	DRC 100 V	Eco On	Eco Off	Eco On V	Eco Off V	
GEO	00	VSZ	V SIZE	20	17	20	1F	17	21	21	1E	1F	1B	1F	1B	1F	1F	20	1F					CXA2100AQ
	01	VPS	V POSITION	23	24	23	25	24	21	20	22	22	27	21	1B	20	1C	25	24					
	02	VLN	V LINEARITY	06	06	06	06			08	08	06	06	06	06			06	06					
	03	SCO	S CORRECTION	0A	0A	0A	09			09	09	09	09	09	09			09	09					
	04	HSZ	H SIZE	1A	1B	3A	3A	1A	1A	1A	1B	16	16	3A	3A	17	13	16	16					
	05	HPS	H POSITION	30	2F	20	1E	32	2E	34	30	2A	15	32	19	2F	2E	25	21					
	06	PAP	PIN AMP	37	33	36	34			37	32	33	1A	36	35			34	33					
	07	UPN	UPPER CORNER PIN	26	28	26	2A			26	26	25	26	27	2B			27	29					
	08	LPN	LOWER CORNER PIN	26	26	25	25			27	26	25	27	26	18			25	24					
	09	TRZ	TRAPEZIUM	09	09	09	09	08	07	08	08	0C	0B	0C	1B	0C	0A	0B	0B					
	0A	AGL	AFC ANGLE	06	06	06	06			06	06	06	05	06	06			07	06					
	0B	BOW	AFC BOW	09	09	09	09			08	08	09	09	09	09			09	09					
	0C	**LBL**	LEFT H BLANKING	12	12	12	12	12	12	12	12	1B	1B	1B	1B	1B	1B	1B	1B					
	0D	**RBL**	RIGHT H BLANKING	2C	2C	2C	2C	2C	2C	2C	2C	21	21	21	21	21	21	21	21					
	0E	**MPN**	MIDDLE PIN DISTORTION COMPENSATION	00	00							00	00											
	0F	**UVL**	UPPER V LINEARITY	00								00												
	10	**LVL**	LOWER V LINEARITY	00								00												
	11	**HSP**	HORIZONTAL HIGH VOLTAGE COMPENSATION	00	00							00	00											
	12	**VCP**	VERTICAL HIGH VOLTAGE COMPENSATION	00	00							00	00											
	13	**VAS**	V ASPECT	2F	2F							2F	2F											
	14	**VSC**	V SCROLL	1F								1F												
	15	**USC**	UNDER-SCAN MODE ON/OFF	00	01							00	01											
	16	**VBW**	V BLANKING WIDTH CONTROL	00	03	00	03			00	00	00	00	00	00			00	00					
	17	**AT1**	AKB REFERENCE TIMING	02	00	02	00			02	02	02	00	02	00			02	02					
DAC	00	HCT	H CENTER	33								33												MB88141
	01	HLN	H LINEARITY	13	13	13	13			11	11	13	13	13	13			11	11					
	02	MDP	MIDDLE PIN	23	23	23	23			24	24	23	23	23	23			24	24					
	03	CCP	LOWER CORNER PIN	10	10	10	10			10	10	10	10	10	10			10	10					
	04	HTR	HORIZONTAL TRAPEZIUM	12	13	13	13			05	15	12	13	13	13			05	14					
	05	**DF**	DF ON/OFF SWITCH	01	01	01	01			01	01	01	01	01	01			01	01					
	06	**DPH**	DF PHASE	1F	1F	1F	1F			1F	1F	1F	1F	1F	1F			1F	1F					
	07	**QPH**	QP PHASE	19	19	19	19			19	19	19	19	19	19			19	19					
	08	**QAC**	QP AMPLITUDE	23	23	23	23			23	23	23	23	23	23			23	23					
	09	**QDC**	QP DC LEVEL	20	20	20	20			20	20	20	20	20	20			20	20					
	0A	**QDV**	QP V MODULATION	1F	1F	1F	1F			21	21	1E	1E	1E	1E			23	23					
	0B	**QAV**	QP AMPLITUDE MODULATION	1A	1A	1A	1A			21	21	1D	1D	1D	1D			26	26					
	0C	**ABC**	ABL D/A CONTROL																	00	00	7E	7E	

Note: This page informaton only applies to model KV-ES29M61 (S)

SERVICE LIST ITEM

TVG	Functionality		Function	PAL/50Hz								NTSC/60Hz								Device Name
				DRC1050						Progressive		DRC1050						Progressive		
Category	No.	Name		DRC 1050	DRC 1050 VC	PinP	PinP VC	INDEX	TWIN	Progressive	Progressive VC	DRC 1050	DRC 1050 VC	PinP	PinP VC	INDEX	TWIN	Progressive	Progressive VC	
GEO	00	VSZ	V SIZE	1C	1C	1C	1C	1C	1C	1C	1C	20	20	20	20	20	20	1F	1F	CXA2100AQ
	01	VPS	V POSITION	21	21	21	21	21	21	1F	1F	1B	1B	1B	1B	1B	1B	1E	1E	
	02	VLN	V LINEARITY	06	06	06	06			07	07	07	07	07	07			07	07	
	03	SCO	S CORRECTION	09	09	09	09			09	09	0A	0A	0A	0A			09	09	
	04	HSZ	H SIZE	1A	1A	1A	1A	1A	1A	1B	1B	1A	1A	1A	1A	1A	1A	1B	1B	
	05	HPS	H POSITION	24	1F	24	1F	28	24	24	20	1D	17	1D	17	1D	1D	1C	16	
	06	PAP	PIN AMP	22	25	22	25	26	22	21	21	22	25	22	25	22	22	21	21	
	07	UPN	UPPER CORNER PIN	26	2B	26	2B	28	27	26	28	26	2A	26	2A	26	26	26	28	
	08	LPN	LOWER CORNER PIN	27	2A	27	2A	27	27	27	29	27	2A	27	2A	27	27	27	27	
	09	TRZ	TRAPEZIUM	08	08	08	08	08	08	07	07	06	06	06	06	06	08	07	07	
	0A	AGL	AFC ANGLE	09	09	09	09			09	09	09	09	09	09			09	09	
	0B	BOW	AFC BOW	08	08	08	08			06	06	08	08	08	08			07	07	
	0C	**LBL**	LEFT H BLANKING	12	12	12	12	12	12	12	12	1B	1B	1B	1B	1B	1B	1B	1B	
	0D	**RBL**	RIGHT H BLANKING	2C	2C	2C	2C	2C	2C	2C	2C	21	21	21	21	21	21	21	21	
	0E	**MPN**	MIDDLE PIN DISTORTION COMPENSATION	00	00							00	00							
	0F	**UVL**	UPPER V LINEARITY	00								00								
	10	**LVL**	LOWER V LINEARITY	00								00								
	11	**HCP**	HORIZONTAL HIGH VOLTAGE COMPENSATION	00	00							00	00							
	12	**VCP**	VERTICAL HIGH VOLTAGE COMPENSATION	00	00							00	00							
	13	**VAS**	V ASPECT	30	2C	30	2C	2C	30	31	2C	2F	2B	2F	2B	2F	2F	30	2E	
	14	**VSC**	V SCROLL	21	21	21	21	21	21	20	21	24	24	24	24	24	23	23	23	
	15	**USC**	UNDER-SCAN MODE ON/OFF	00	01							00	01							
	16	**VBW**	V BLANKING WIDTH CONTROL	00	03	00	03			00	03	00	03	00	03			00	03	
	17	**AT1**	AKB REFERENCE TIMING	02	00	02	00			02	02	02	00	02	00			02	02	
DAC	00	HCT	H CENTER	09								09								MB88141
	01	HLN	H LINEARITY	13	13	13	13			11	11	13	13	13	13			10	10	
	02	MDP	MIDDLE PIN	25	25	25	25			23	23	25	25	25	25			23	23	
	03	**CCP**	LOWER CORNER PIN	10	10	10	10			10	10	10	10	10	10			10	10	
	04	HTR	HORIZONTAL TRAPEZIUM	13	13	13	13			1C	1C	12	13	13	13			17	17	
	05	**DF**	DF ON/OFF SWITCH	01	01	01	01			01	01	01	01	01	01			01	01	
	06	DPH	DF PHASE	01	01	01	01			01	01	19	01	01	01			01	01	
	07	QPH	QP PHASE	01	01	01	01			01	01	13	01	01	01			01	01	
	08	**QAC**	QP AMPLITUDE	23	23	23	23			23	23	23	23	23	23			23	23	
	09	**QDC**	QP DC LEVEL	20	20	20	20			20	20	20	20	20	20			20	20	
	0A	**QDV**	QP V MODULATION	1F	1F	1F	1F			21	21	1E	1E	1E	1E			23	23	
	0B	**QAV**	QP AMPLITUDE MODULATION	1A	1A	1A	1A			21	21	1D	1D	1D	1D			26	26	
	0C	ABC	ABL D/A CONTROL																	

condition:

Picture Mode : Dynamic

Picture Rotation : 0

Eco Mode : OFF

Note: This page informaton only applies to model KV-ES29N90 (WB)

SERVICE LIST ITEM

TVG	Functionality		Function		Device
Category	No.	Name		Common	
WHB	00	**CBO**	DC OFFSET CANCELLER FOR CB1	0A	CXA2100AQ
	01	**CRO**	DC OFFSET CANCELLER FOR CR1	0A	
	02	SBR	SUB BRIGHTNESS CONTROL	1F	
	03	**RDR**	R DRIVE	29	
	04	GDR	G DRIVE	24	
	05	BDR	B DRIVE	25	
	06	**RCT**	R CUTOFF	29	
	07	GCT	G CUTOFF	06	
	08	BCT	B CUTOFF	25	
	09	**SBO**	SUB BRIGHTNESS OFFSET	20	
	0A	**RDO**	R DRIVE OFFSET	1F	
	0B	**GDO**	G DRIVE OFFSET	1A	
	0C	**BDO**	B DRIVE OFFSET	1B	
	0D	**RCO**	R CUTOFF OFFSET	1F	
	0E	**GCO**	G CUTOFF OFFSET	22	
	0F	**BCO**	B CUTOFF OFFSET	16	

SERVICE LIST ITEM

TVG	Functionality		Function	Common	50			60			Twin	Index	Picture Mode				Eco Mode				Device Name
Category	No.	Name			TV	Video	DVD	TV	Video	DVD			Dynamic	Standard	Hi-Fine	Personal	Eco-OnNC	Eco-OffNC	Eco-OnVC	Eco-OffVC	
SAJ	00	**PIC**	PICTURE CONTROL										3F	32	28						CXA2100AQ
	01	**BRT**	BRIGHTNESS CONTROL										23	1F	1B						
	02	**COL**	COLOR CONTROL										2B	1F	1F						
	03	**HUE**	HUE CONTROL										1F	1F	1F						
	04	**SHP**	SHARPNESS CONTROL										22	1F	1D						
	05	**VML**	VM LEVEL										03	02	01	02					
	06	**DYC**	DYNAMIC COLOR ON/OFF										01	01	00	01					
	07	**CTM**	COLOR TEMPERATURE FOR DYNAMIC COLOR										00	00	00	00					
	08	**CAX**	COLOR MATRIX SPECIFICATION		02	02	02	00	00	00											
	09	**GMA**	GAMMA CORRECTION										02	02	03	02					
	0A	**DCT**	DC TRANSMISSION CONTROL										01	01	00	01					
	0B	**DPL**	AUTO PEDESTAL LEVEL CONTROL										02	01	00	01					
	0C	**ABM**	ABL MODE CONTROL										01	00	00	00					
	0D	**ABT**	ABL CURRENT DETECTION VTH CONTROL														02	00	02	00	
	0E	**CLO**	COLOR OFFSET		09	08		09	09												
	0F	**CLW**	COLOR STEP WIDTH TO THE CHANGE OF S/N	03																	
	10	**HUO**	HUE OFFSET		08	08		09	09												
	11	**SHO**	SHARPNESS OFFSET		12	14	0F	09	0F	0F											
	12	**SHW**	SHARPNESS STEP WIDTH TO THE CHANGE OF S/N	01																	
	13	**PIO**	PICTURE OFFSET FOR TWIN/INDEX								07	07									
	14	**BRO**	BRIGHTNESS OFFSET														07	07	07	07	
JGL	00	**PON**	RGB AND AKB REFERENCE PULSE OUTPUT ON/OFF	01																	CXA2100AQ
	01	**RGB**	RGB OUTPUT SELECTION	07																	
	02	**AGG**	AGING MODE SELECTION	00																	
	03	**DPS**	Y/C DELAY LINE PASS MODE SWITCH	00																	
	04	**BBT**	RGB BOTTOM LIMITTER CONTROL	03																	
	05	**LML**	RGB AMPLITUDE LIMITTER CONTROL	00																	
	06	**PAB**	DC LEVEL FOR PEAK ABL	0F																	
	07	**SCO**	SUB PICTURE CONTROL	07																	
	08	**LV2**	RGB LEVEL FOR RGB2	07																	
	09	**SF0**	SHARPNESS CIRCUIT F0		01	01	01	01	01	01											
	0A	**PRO**	PRE/OVER-SHOOT RATIO CONTROL		00	03	03	03	03	03											
	0B	**LTI**	LUMINANCE TRANSIENT IMPROVEMENT										02	02	00	02					
	0C	**CTI**	CHROMINANCE TRANSIENT IMPROVEMENT										01	01	00	01					

SERVICE LIST ITEM

TVG	Functionality		Function												Device Name
				Common	2D Comb	3D Comb	S-Input	Others	TV		Video		DVD		
Category	No.	Name							50	60	50	60	50	60	
YCT	00	TNT	TINT ADJUSTMENT FOR NTSC						25	25	22	22			CXA2123Q
	01	**PNG**	PAL/NTSC GATE WIDTH	00											
	02	**PNI**	PAL/NTSC SENSITIVITY SW	00											
	03	SCL	SUB COLOR CONTROL						05	04	07	07			
	04	SCT	SUB CONTRAST CONTROL						08	07	08	07			
	05	**SF0**	SHARPNESS CENTER FREQUENCY CHANGING	02											
	06	**SEQ**	SHARPNESS EQUALIZER CHARACTERISTIC	03											
	07	**SHG**	SHARPNESS GAIN CONTROL						05	06	05	06	07	07	
	08	YOL	Y-OUTPUT LEVEL CONTROL	1F											
	09	**BSP**	BLACK STRETCH START POINT CHANGING	00											
	0A	COL	CB/CR OUTPUT LEVEL CONTROL	1A											
	0B	**DCR**	DC RESTORATION RATIO ADJUSTMENT	00											
	0C	**BF0**	BPF/TQF F0 ADJUSTMENT	01											
	0D	**BFQ**	BPF/TQF Q ADJUSTMENT	02											
	0E	**FSW**	BPF/TQF SWITCH	01											
	0F	**SDT**	SECAM DOUBLE TRAP SWITCH	01											
	10	**LPF**	Y/CB/CR LPF SWITCH	01											
	11	**YDL**	Y-DL TIME ADJUSTMENT		06	05	03	05							
	12	**CMT**	CB/CR OUTPUT MUTE SWITCH	00											
	13	**BO1**	CB OFFSET1 ADJUSTMENT (MAIN ROUTE)	07											
	14	**RO1**	CR OFFSET1 ADJUSTMENT	07											
	15	**CDF**	V COUNT DOWN FREQUENCY SWITCH	00											
	16	**CDM**	V COUNT DOWN JUDGE SWITCH	00											
	17	**AFC**	AFC SENSITIVITY SWITCH								00	00	00	00	
	18	**MVM**	MACROVISION MASK + AFC MASK	00											
	19	**SRY**	SECAM R-Y BLACK ADJUSTMENT	07											
	1A	**SBY**	SECAM B-Y BLACK ADJUSTMENT	01											
	1B	**BEL**	SECAM BELL/HPF SWITCHING	02											
	1C	**BLF**	BELL F0 ADJUSTMENT	00											
	1D	**SVI**	SECAM V-ID SWITCH	00											
	1E	**SGP**	SECAM GATE POSITION ADJUSTMENT	00											
	1F	**SID**	SECAM SENSITIVITY SWITCH	01											
	20	**SIH**	SECAM INHIBITION SWITCH	00											
	21	**STP**	Y BLACK LEVEL SETUP FOR PAL PLUS	00											
	22	**HVC**	H-VCO TEMPERATURE CHARACTER CANCELLING	02											
	23	**3NR**	3D NR OPERATION ON/OFF	01											
	24	**BW6**	3D NR FOR 60Hz NON-BUST SIGNAL ON/OFF	01											
	25	**WSH**	SHARPNESS GAIN STEP FOR NOISE REDUCTION	00											
	26	**WCO**	DC RESTORATION RATIO ADJUSTMENT	00											

SERVICE LIST ITEM

TVG	Functionality		Function											Device Name
				Common	S-Input	Col Mode			TV		Video		DVD	
Category	No.	Name				SECAM	NTSC	PAL	50	60	50	60		
SYC	00	TNT	TINT ADJUSTMENT FOR NTSC						22	22	20	20		CXA2123Q
	01	**PNG**	PAL/NTSC GATE WIDTH	00										
	02	**PNI**	PAL/NTSC SENSITIVITY SW	00										
	03	SCL	SUB COLOR CONTROL						06	06	09	09		
	04	SCT	SUB CONTRAST CONTROL						08	07	08	07		
	05	**SF0**	SHARPNESS CENTER FREQUENCY CHANGING	02										
	06	**SEQ**	SHARPNESS EQUALIZER CHARACTERISTIC	03										
	07	**SHG**	SHARPNESS GAIN CONTROL	07										
	08	YOL	Y-OUTPUT LEVEL CONTROL	1F										
	09	**BSP**	BLACK STRETCH START POINT CHANGING	00										
	0A	COL	CB/CR OUTPUT LEVEL CONTROL	3C										
	0B	**DCR**	DC RESTORATION RATIO ADJUSTMENT	00										
	0C	**BF0**	BPF/TQF F0 ADJUSTMENT	01										
	0D	**BFQ**	BPF/TQF Q ADJUSTMENT	02										
	0E	**FSW**	BPF/TQF SWITCH	01										
	0F	**SDT**	SECAM DOUBLE TRAP SWITCH	01										
	10	**LPF**	Y/CB/CR LPF SWITCH	01										
	11	**YDL**	Y-DL TIME ADJUSTMENT		05	03	02	03						
	12	**NCM**	1-H ADDITION SWITCH	01										
	13	**CMT**	CB/CR OUTPUT MUTE SWITCH	00										
	14	**BO1**	CB OFFSET1 ADJUSTMENT (MAIN ROUTE)	07										
	15	**RO1**	CR OFFSET1 ADJUSTMENT	07										
	16	**CDF**	V COUNT DOWN FREQUENCY SWITCH	00										
	17	**CDM**	V COUNT DOWN JUDGE SWITCH	00										
	18	**AFC**	AFC SENSITIVITY SWITCH								00	00	00	
	19	**MVM**	MACROVISION MASK + AFC MASK	00										
	1A	**SRY**	SECAM R-Y BLACK ADJUSTMENT	07										
	1B	**SBY**	SECAM B-Y BLACK ADJUSTMENT	01										
	1C	**BEL**	SECAM BELL/HPF SWITCHING	02										
	1D	**BLF**	BELL F0 ADJUSTMENT	00										
	1E	**SVI**	SECAM V-ID SWITCH	00										
	1F	**SGP**	SECAM GATE POSITION ADJUSTMENT	00										
	20	**SID**	SECAM SENSITIVITY SWITCH	01										
	21	**SIH**	SECAM INHIBITION SWITCH	00										
	22	**STP**	Y BLACK LEVEL SETUP FOR PAL PLUS	00										
	23	**HVC**	H-VCO TEMPERATURE CHARACTER CANCELLING	02										

SERVICE LIST ITEM

TVG	Functionality		Function									Device Name
Category	No.	Name		Common	Sur VDD	Sur VDP	Sur TRS	Sur SIM	Sur Off	Dynamic	Drama	Soft	
AP	00	BAS	BASS CONTROL							0B	09	07	TDA7315
	01	TRE	TREBLE CONTROL							0B	09	07	
	02	LDN	LOUDNESS ON/OFF	01									
DSP	00	**DUL**	DIR UNLOCK DETECTION MODE	00									TC9446F
	01	**DIM**	DIGITAL INPUT MODE	03									
	02	TFM	TRUSURROUND FRONT MINUS		5A	5A							
	03	TFP	TRUSURROUND FRONT PLUS		12	12							
	04	TCE	TRUSURROUND CENTER		40	40							
	05	TS1	TRUSURROUND SURROUND #1		20	E0							
	06	TS2	TRUSURROUND SURROUND #2		20	20							
	07	TSP	TRUSURROUND SURROUND PLUS		68	68							
	08	TSM	TRUSURROUND SURROUND MINUS		68	68							
	09	LFE	LOW FREQUENCY EFFECT	5A									
	0A	BHL	BBE EFFECT 1 FOR BBE HIGH		33	33	33	28	40				
	0B	BHH	BBE EFFECT 2 FOR BBE HIGH		33	33	33	28	48				
	0C	BLL	BBE EFFECT 1 FOR BBE LOW		2B	2B	2B	24	33				
	0D	BLH	BBE EFFECT 2 FOR BBE LOW		2B	2B	2B	24	33				
	0E	DLR	DELAY SELECTION AT DSP RESET	07									
	0F	BBE	BBE SELECTION							01	01	03	

TVG	Functionality		Function		Device
Category	No.	Name		Common	
MSP	00	**WST**	W/G STEREO THRESHOLD	15	MSP3415D
	01	**WBT**	W/G BILINGUAL THRESHOLD	EA	
	02	**WLL**	W/G MONOAURAL THRESHOLD	05	
	03	**WAC**	W/G AGREEMENT COUNT	01	
	04	**WDL**	W/G SEARCH DELAY	30	
	05	**NDL**	NICAM SEARCH DELAY	20	
	06	**SDL**	STEREO STATUS READ DELAY	10	
	07	**AGC**	AGC SWITCH AUTO/CONSTANT	01	
	08	**REL**	AGC GAIN AT CONSTANT MODE	28	
	09	**CRM**	CARRIER MUTING ON/OFF	00	
	0A	**ACO**	AUDIO CLOCK ON/OFF	01	
	0B	**FP**	FM PRESCALE FOR NON-M SYSTEM	1B	
	0C	**FPM**	FM PRESCALE FOR M SYSTEM	32	
	0D	**FH**	FM PRESCALE FOR HDEV	2D	
	0E	**FHM**	FM PRESCALE FOR HDEV AND M	65	
	0F	**WGP**	W/G PRESCALE	2A	
	10	**NIP**	NICAM PRESCALE	6D	
	11	**ERR**	AUTO FM SWITCH THRESHOLD	50	
	12	**VOL**	LOUDSPEAKER GAIN 0700H TO 07FFH	6D	

SERVICE LIST ITEM

TVG	Functionality		Function									Device Name
				Common	Twin	TV	Video	Picture Mode				
Category	No.	Name						Dynamic	Standard	Hi-Fine	Personal	
LTI	00	**LDH**	HISTOGRAM SEGMENT SELECTION	01								TDA9178
	01	**CFS**	CONTOUR FILTER SELECTION	01								
	02	**WLB**	LETTERBOX WINDOW SWITCH	00								
	03	**VDC**	VIDEO DEPENDENT CORING					01	01	01	01	
	04	**DEM**	DEMONSTRATION MODE	00								
	05	**CDP**	LUMINANCE DELAY	04								
	06	**OSP**	OVERRULE SMART PEAKING	00								
	07	**WPO**	WHITE POINT STRETCH OFF	00								
	08	**DSK**	SKIN TONE SWITCH					00	00	00	00	
	09	**ASK**	SKIN TONE ANGLE SELECTION	00								
	0A	**WSK**	SKIN TONE WIDTH SELECTION	00								
	0B	**SSK**	SKIN TONE SIZE SELECTION	00								
	0C	**DGR**	GREEN ENHANCEMENT SWITCH		00			01	01	00	01	
	0D	**DGT**	THRESHOLD OF GREEN ENHANCEMENT SWITCH	07								
	0E	**GGR**	GREEN ENHANCEMENT GAIN	00								
	0F	**WGR**	GREEN ENHANCEMENT WITDH	00								
	10	**SGR**	GREEN ENHANCEMENT SIZE	00								
	11	**DBL**	BLUE STRETCH SWITCH	00								
	12	**GBL**	BLUE STRETCH GAIN SELECTION	00								
	13	**SBL**	BLUE STRETCH SIZE SELECTION	00								
	14	**CDS**	COLOR DEPENDENT SHARPNESS					01	01	00	01	
	15	**CST**	THRESHOLD OF COLOR DEPENDENT SHARPNESS	07								
	16	**CTI**	COLOR TRANSIENT IMPROVEMENT					00	00	00	00	
	17	**BON**	BLACK OFFSET COMPENSATION					00	00	00	00	
	18	**BTD**	ADAPTIVE BLACK STRETCH					00	00	00	00	
	19	**NLD**	NON-LINEARITY AMPLIFIER		00			15	15	00	15	
	1A	**NLW**	STEP WIDTH OF NON-LINEARITY AMPLIFIER	07								
	1B	**VGD**	VARIABLE GAMMA		1F			1F	1F	1F	1F	
	1C	**VGW**	STEP WITDH OF VARIABLE GAMMA	00								
	1D	**PKD**	PEAKING AMPLITUDE					3F	2B	0E	2B	
	1E	**PKW**	STEP WIDTH OF PEAKING AMPLITUDE	08								
	1F	**SPD**	STEPNESS CORRECTION					00	00	00	00	
	20	**CRD**	CORING LEVEL					1B	1B	00	1B	
	21	**CRW**	STEP WIDTH OF CORING LEVEL	09								
	22	**CRO**	CORING LEVEL OFFSET FOR VIDEO MODE	06								
	23	**LWD**	LINE WIDTH CORRECTION	1F								
	24	**SNM**	S/N MODE UNDER UNREALIBLE S/N CONDITION	00								
	25	**SNC**	S/N RATIO AVERAGE COUNTER			03	03					
	26	**FMC**	FEATURE MODE MATCHING COUNTER	0D								

SERVICE LIST ITEM

TVG	Functionality		Function	50					60					Device Name
Category	No.	Name		Single DRC 1250	PinP	TWIN	INDEX	Single DRC 100	Single DRC 1250	PinP	TWIN	INDEX	Single DRC 100	
MID	00	HPH	HORIZONTAL ACTIVE DISPLAY AREA PHASE	52	52	8E	8E	52	52	52	7F	7F	52	MB94918
	01	VPH	VERTICAL ACTIVE DISPLAY AREA PHASE	1A	1A	1F	1F	0D	1D	1D	1F	1F	11	
	02	HSZ	HORIZONTAL ACTIVE DISPLAY AREA SIZE	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	
	03	VSZ	VERTICAL ACTIVE DISPLAY AREA SIZE	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	
	04	HPW	DISPLAY H-SYNC PLUS WIDTH	3F	3F	3F	3F	3F	3F	3F	3F	3F	3F	
	05	VPW	DISPLAY V-SYNC PLUS WIDTH	03	03	03	03	03	03	03	03	03	03	
	06	YDL	DISPLAY OUTPUT Y/C DELAY CORRECTION	00	00	00	00	00	00	00	00	00	00	
	07	MHP	MAIN PICTURE HORIZONTAL POSITION (SINGLE & PINP)	7F	7F			7F	7F	7F			7F	
	08	MVP	MAIN PICTURE VERTICAL POSITION (SINGLE & PINP)	7F	7F			7F	7F	7F			7F	
	09	MHS	MAIN PICTURE HORIZONTAL SIZE (SINGLE & PINP)	7F	7F			7F	7F	7F			7F	
	0A	MVS	MAIN PICTURE VERTICAL SIZE (SINGLE & PINP)	7F	7F			7F	7F	7F			7F	
	0B	PHP	PINP SUB PICTURE HORIZONTAL POSITION		7F					7F				
	0C	PVP	PINP SUB PICTURE VERTICAL POSITION		7F					7F				
	0D	PHS	PINP SUB PICTURE HORIZONTAL SIZE		7F					7F				
	0E	PVS	PINP SUB PICTURE VERTICAL SIZE		7F					7F				
	0F	PHO	PINP SUB PICTURE HORIZONTAL POSITION OFFSET		7F					7F				
	10	PVO	PINP SUB PICTURE VERTICAL POSITION OFFSET		7F					7F				
	11	TMP	TWIN MAIN PICTURE HORIZONTAL POSITION			00					00			
	12	TSP	TWIN SUB PICTURE HORIZONTAL POSITION											
	13	TVP	TWIN MAIN & SUB PICTURE VERTICAL POSITION											
	14	THS	TWIN MAIN & SUB PICTURE HORIZONTAL SIZE											
	15	TVS	TWIN MAIN & SUB PICTURE VERTICAL SIZE											
	16	THO	TWIN MAIN & SUB PICTURE HORIZONTAL POSITION OFFSET											
	17	TVO	TWIN MAIN & SUB PICTURE VERTICAL POSITION OFFSET											
	18	XHS	INDEX SUB PICTURE HORIZONTAL SIZE											
	19	XVS	INDEX SUB PICTURE VERTICAL SIZE											
	1A	XHG	INDEX HORIZONTAL GAP WIDTH BETWEEN PICTURES											
	1B	XVG	INDEX VERTICAL GAP WIDTH BETWEEN PICTURES											
	1C	XHP	INDEX 1ST SUB PICTURES HORIZONTAL POSITION											
	1D	XVP	INDEX 1ST SUB PICTURES VERTICAL POSITION											
	1E	DHP	DRC HORIZONTAL ACTIVE AREA POSITION	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	
	1F	DHS	DRC HORIZONTAL ACTIVE PIXEL SIZE	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	

Note: The functionality name HPH, VPH, HSZ and VSZ of MID category and its related data information above applies only to model KV-ES29M61 (Thailand).

SERVICE LIST ITEM

TVG	Functionality		Function	50					60					Device Name
Category	No.	Name		Single DRC 1250	PinP	TWIN	INDEX	Single DRC 100	Single DRC 1250	PinP	TWIN	INDEX	Single DRC 100	
MID	20	DVP	DRC VERTICAL ACTIVE AREA LINE POSITION	1A	1A	3F	3F	1A	1A	1A	39	39	1A	MB94918
	21	DVS	DRC VERTICAL ACTIVE AREA LINE SIZE	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	
	22	VHP	VDO HORIZONTAL ACTIVE AREA POSITION		7F	7F	7F			7F	7F	7F		
	23	VHS	VDO HORIZONTAL ACTIVE AREA PIXEL SIZE		7F	7F	7F			7F	7F	7F		
	24	VEP	VDO VERTICAL ACTIVE AREA EVEN POSITION		1E	1E	1E			1B	1B	1B		
	25	VVS	VDO VERTICAL ACTIVE AREA LINE SIZE		7F	7F	7F			7F	7F	7F		
	26	VOP	VDO VERTICAL ACTIVE AREA ODD POSITION		00	00	00			00	00	00		
	27	CLT	VDO CLAMP PULSE OUTPUT TIMING		7F	7F	7F			7F	7F	7F		
	28	CLW	VDO CLAMP PULSE WIDTH		04	04	04			04	04	04		
	29	VYD	VDO ANALOG INPUT Y/C DELAY CORRECTION		00	00	00			00	00	00		
	2A	VCR	VDO CROMA SIGNAL ORDER		01	01	01			01	01	01		
	2B	VDI	VDO DIGITAL ANALOG INPUT SELECTION		01	01	01			01	01	01		

KV-ES29N90 (TAIWAN ONLY)

TVG	Functionality		Function	PAL/50Hz								NTSC/60Hz								Device Name
				DRC1050						Progressive		DRC1050						Progressive		
Category	No.	Name		DRC 1050	DRC 1050 VC	PinP	PinP VC	INDEX	TWIN	Progressive	Progressive VC	DRC 1050	DRC 1050 VC	PinP	PinP VC	INDEX	TWIN	Progressive	Progressive VC	
MID	00	**HPH**	HORIZONTAL ACTIVE DISPLAY AREA PHASE	52		52		8B	90	52		52		52		78	7E	52		MB94918
	01	**VPH**	VERTICAL ACTIVE DISPLAY AREA PHASE	1A		1A		20	24	0D		25		25		2D	2E	13		
	02	**HSZ**	HORIZONTAL ACTIVE DISPLAY AREA SIZE	7F		7F		7F	7F	7F		7F		7F		7F	7F	7F		
	03	**VSZ**	VERTICAL ACTIVE DISPLAY AREA SIZE	7F		7F		7F	7F	7F		7F		7F		7F	7F	7F		

SERVICE LIST ITEM

TVG	Functionality		Function											Device Name
				Common	TV	Video	NR Mode				Picture Mode			
Category	No.	Name					NRmode0	NRmode1	NRmode4	NRmode3	Dynamic	Standard	Hi-Fine	Personal	
3CM	00	**FRZ**	EXTERNAL MEMORY TEST BIT	00											UPD64082
	01	**NRM**	NOISE REDUCTION OPERATION MODE	00											
	02	**YCO**	Y/C SIGNAL OUTPUT SELECTION	0D											
	03	**SYC**	SYSTEM CLOCK SELECTION	01											
	04	**STD**	STANDARD/NON-STANDARD OPERATION SELECTION	00											
	05	**MSS**	INTER-FRAME/INTER-LINE OPERATION SELECTION	00											
	06	**KIL**	KILLER/NON-KILLER OPERATION SELECTION	03											
	07	**EAD**	EXTERNAL Y-ADC SWITCH	00											
	08	**ECS**	EXTERNAL C-SYNC INPUT SELECTION	01											
	09	**CPP**	ADC INPUT LEVEL & CLUMP PULSE WIDTH SELECTION	02											
	0A	**PWR**	ADC INPUT WIDTH SWITCH	00											
	0B	**HDP**	HORIZONTAL PHASE ADJUSTMENT	05											
	0C	**CDL**	C-SIGNAL ADJUSTMENT	04											
	0D	**DYC**	DY DETECTION CORING LEVEL ADJUSTMENT				02	02	02	04					
	0E	**DYG**	DY DETECTION GAIN ADJUSTMENT				0A	0A	0A	0A					
	0F	**DCC**	DC DETECTION CORING LEVEL ADJUSTMENT				05	03	03	05					
	10	**DCG**	DC DETECTION GAIN ADJUSTMENT				05	0A	0A	05					
	11	**YNR**	YNR NON-LINEAR FILTER SETUP	01											
	12	**CNR**	CNR NON-LINEAR FILTER SETUP	01											
	13	**WSC**	NOISE DETECTION CORING ADJUSTMENT	01											
	14	**VTH**	HYSTERESIS SELECTION FOR H-SYNC NON-STANDARD		01	01									
	15	**VTR**	SENSITIVITY SELECTION FOR H-SYNC NON-STANDARD		01	01									
	16	**LDR**	SENSITIVITY SELECTION FOR FRAME-SYNC NON-STANDARD		02	01									
	17	**VAP**	GAIN ADJUSTMENT FOR VERTICAL SHAPE CORRECTION								03	00	00	00	
	18	**VAI**	VANISHING ADJUSTMENT FOR VERTICAL SHAPE CORRECTION								0C	00	00	00	
	19	**TST**	TEST BIT	00											
	1A	**YPF**	CENTER FREQUENCY SELECTION FOR Y-PEAKING BPF								03	03	03	03	
	1B	**YPG**	GAIN ADJUSTMENT FOR Y-PEAKING BPF								08	08	08	08	
	1C	**VSE**	LINE COMB FILTER SETUP	0A											
	1D	**CCN**	C-SIGNAL SPLIT FILTER SWITCH	00											
	1E	**COS**	C-SIGNAL DELAY SWITCH AT NOISE REDUCTION	00											
	1F	**SDC**	DC DETECTION SENSITIVITY SWITCH	00											

SERVICE LIST ITEM

TVG	Functionality		Function											Device Name
				Common	TV	Video	NR Mode				Picture Mode			
Category	No.	Name					NRmode0	NRmode1	NRmode4	NRmode3	Dynamic	Standard	Hi-Fine	Personal	
3CM	20	**SDY**	DY DETECTION LOWER-LEVER SENSITIVITY SWITCH	01											UPD64082
	21	**D2G**	D2 GAIN SELECTION	04											
	22	**YHC**	Y-SIGNAL HIGHER-LEVEL CORING SELECTION	00							00	00	00	00	
	23	**YHG**	Y-SIGNAL HIGHER-LEVEL GAIN SWITCH	00							00	00	00	00	
	24	**SHT**	NON-STANDARD DETECTION & H/V COUNTER TEST BITS	00											
	25	**CLK**	CLOCK TEST BITS	08											
	26	**PLL**	PLL FILTER SETUP	0D											
	27	**KRF**	KILLER DETECTION REFERENCE ADJUSTMENT	03											
	28	**HSL**	H-SYNC SLICE LEVEL ADJUSTMENT	0C											
	29	**VSL**	V-SYNC SLICE LEVEL ADJUSTMENT	08											
	2A	**BPS**	INTERNAL BURST GATE START POSITION ADJUSTMENT	04											
	2B	**BPW**	INTERNAL BURST GATE WIDTH ADJUSTMENT	0A											
	2C	**ADC**	ADC CLOCK DELAY SELECTION	03											
	2D	**APD**	ADC POWER-DOWN SWITCH	01											
	2E	**NSD**	NON-STANDARD DETECTION TEST BIT	01											
	2F	**SPD**	MEMORY POWER-DOWN SWITCH	02											
	30	**CNT**	CNR TEST BIT	00											
2CM	00	**APA**	2D COMB APACON ON/OFF								01	00	00	00	CXA2069Q

TVG	Functionality		Function			Device
				50	60	
Category	No.	Name				
DYC	00	**SBH**	H STATIC CONV1	1F	1F	CXA8070P
	01	**YBU**	H STATIC CONV2 UPPER	1F	1F	
	02	**YBL**	H STATIC CONV2 LOWER	1F	1F	
	03	**RSA**	H DYNAMIC CONV1 LEFT	1F	1F	
	04	**LSA**	H DYNAMIC CONV1 RIGHT	1F	1F	
	05	**LUB**	H DYNAMIC CONV2 TOP LEFT	1F	1F	
	06	**LLB**	H DYNAMIC CONV2 BOTTOM LEFT	1F	1F	
	07	**RUB**	H DYNAMIC CONV2 TOP RIGHT	1F	1F	
	08	**RLB**	H DYNAMIC CONV2 BOTTOM RIGHT	1F	1F	

SERVICE LIST ITEM

TVG	Functionality		Function				Device
Category	No.	Name		Common	50	60	
TXT	00	TXH	TELETEXT HORIZONTAL POSITION	4B			SAA5261
	01	TXV	TELETEXT VERTICAL POSITION	0E			
OPM	00	OSH	OSD H POSITION	12			CXP750096 OPTION-MISC
	01	FW1	OSD ODD/EVEN FIELD WINDOW SETUP #1	00			
	02	FW2	OSD ODD/EVEN FILED WINDOW SETUP #2	03			
	03	OHO	OSD H POSITION OFFSET FOR INDEX	09			
	04	ICO	INDEX "VIDEO" OSD HORIZONTAL OFFSET (12+1 INDEX)	01			
	05	ISO	INDEX SUB-SCREEN OSD HORIZONTAL OFFSET	02			
	06	IL1	INDEX SUB-SCREEN OSD 1ST LINE VERTICAL POSITION		1C	16	
	07	IVO	INDEX SUB-SCREEN OSD VERTICAL OFFSET		2F	22	
	08	**COM**	COMB OPERATION SELECTION	00			
	09	**APC**	APC SWITCH MUTE	01			
	0A	**TSY**	TV SYSTEM SELECTION UNDER SEARCHING WITH AUTO TV SYSTEM	00			
	0B	**MUT**	NO SIGNAL MUTE	00			
	0C	**AFM**	AUTO FM SWITCH	01			
	0D	TVO	V-ANGLE CORRECTION TO PICTURE ROTATION	03			
	0E	DBL	DISABLE BLUEBACK FUNCTION	01			
	0F	**SSO**	SPEED CH SEARCH SELECTION	01			
	10	TRP	MPEG/JPEG NOISE REDUCTION FOR EACH INPUT	00			
OPB	00	OP1	OPTIONAL BITS 1 (SEE THE SPECIFIED SHEET)	67			OPTION-BITS
	01	OP2	OPTIONAL BITS 2 (SEE THE SPECIFIED SHEET)	13			

Abbreviation:

ECO = Eco Mode
VC = V-Compressed Mode
NC = Non-Compressed Mode
Sur = Surround
VDD = Virtual Dolby Digital
VDP = Virtual Dolby Prologic
TRS = Tru Surround
SIM = Simulated

NOTE

- shaded items are fixed data.
- no data
- Standard data listed on the Adjustment Item Table are reference values, therefore it may be different for each model and for each mode.
- Note for Different Data: Those are the standard data values written on the microprocessor. Therefore, the data values of the modes and stored respectively in the memory.
  In case of a device replacement, adjustment by rewriting the data value is necessary for some items.

OPTION NOTE

COM Comb Operation Selection — 00 = automatic operation (depends on color system status), 01 = no comb operation, 02 = forced 2D-comb operation, 03 = forced 3D-comb operation

TSY TV System Selection for Auto TV System — 00 = B/G, 01 = I, 10 = D/K, 11 = M

SSO Speed CH Search Selection — 00 = normal, 01 = 4 times, 10 = 6 times, 11 = 8 times

TRP MPEG/JPEG Noise Reduction

Input	–	–	TV	Video 1	Video 2	Video 3	Video 4	DVD

OP1 Items

Item	TOP	NICAM	HDEV	Reserved	–	DVD Input	AV Input	
KV-ES29M61	1	1	1	0	0	1	1	1
KV-ES29N90	0	1	1	0	0	1	1	1

AV Input 00 = no AV Input, 01 = 1 AV Input, 10 = 3 AV Input, 11 = 4 AV Input

OP2 Items

Item	C-Text	Korea Stereo	Korea Mode	A-TV SYS	USST	SSV - Model	OSD Language	
KV-ES29M61	0	0	0	1	0	0	1	1
KV-ES29N90	0	0	0	1	1	0	0	1

5-3. PICTURE QUALITY ADJUSTMENTS

-H-TRAPIZIUM ADJUSTMENT

1. Input a cross hatch/dot signal.
2. Adjust DAC 4 HTR to make H-Trapizoid distortion best.

SUB CONTRAST, SUB HUE, SUB COLOR

Adjustment condition

SAJ	00	PIC	3F
	06	DYC	0
	0E	CLO	6
	10	HUO	7
	13	PIO	0
JGL	04	BBT	0
	05	LML	3

PICTURE QUALITY : HI-FINE
ECO MODE : OFF
WIDE MODE : OFF
DRC-MF : DRC1250

INPUT SIGNAL

Video Color Bar (White and Color 75%)
RF Color Bar (White and Color 75%)

MEASUREMENT POINT

VR ; R100 (the pin 6 of CN1100 at A board)
VB ; B100 (the pin 7 of CN1100 at A board)

CAUTION

After the above Adjustment, these adjustment parameters must be recovered to the original condition.

Original condition

SAJ	00	PIC 28	HI-FINE
SAJ	06	DYC 0	HI-FINE

	50 TV	50 VIDEO	60 TV	60 VIDEO
OE CLO	9	8	9	9
10 HUO	8	8	9	9

13	PIO	TWIN = 7
JGL	04	BBT 3
	05	LML 0

1. NTSC VIDEO INPUT

Input signal ; NTSC color bar, 75% to Video 1.
[TWIN] mode, [Service] mode.

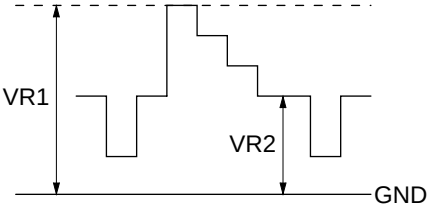
(i) SUB CONTRAST

Condition :

SAJ	00	PIC	3F
	02	COL	0
JGL	01	RGB	4
SAJ	13	PIO	0

Adjusting parameter:

LEFT ; YCT 08 YOL
RIGHT ; SYC 08 YOL



VR1 - VR2 = 1.85 ± 0.07 (Vp-p)

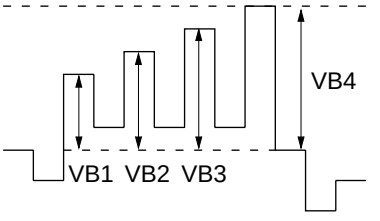
(ii) SUB HUE/SUB COL

Condition :

SAJ	02	COL	1F
JGL	01	RGB	7
SAJ	10	HUO	7

Adjusting parameter:

LEFT	;	YCT	0A	COL
		YCT	00	TNT
RIGHT	;	SYC	0A	COL
		SYC	00	TNT



VB1 = VB4 ± 70 mV
VB2 = VB3 ± 70 mV

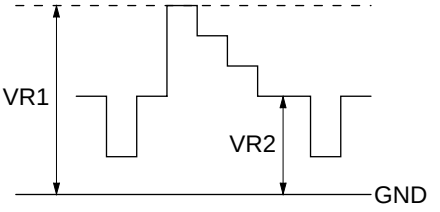
2. NTSC RF INPUT

Input signal ; NTSC RF color bar, 75%.
[TWIN] mode, [Service] mode.

(i) SUB CONTRAST

Condition : SAJ 00 PIC 3F
SAJ 02 COL 0
JGL 01 RGB 4

Adjusting parameter:
LEFT ; YCT 04 SCT
RIGHT ; SYC 04 SCT

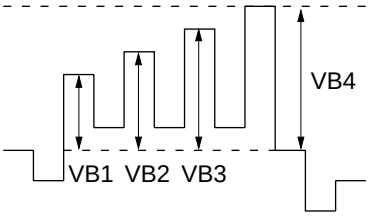


VR1 - VR2 = 1.85 ± 0.07 (Vp-p)

(ii) SUB HUE/SUB COL

Condition : SAJ 02 COL 1F
JGL 01 RGB 7
SAJ 10 HUO 7

Adjusting parameter:
LEFT ; YCT 03 SCL
YCT 00 TNT
RIGHT ; SYC 03 SCL
SYC 00 TNT



VB1 = VB4 ± 70 mV
VB2 = VB3 ± 70 mV

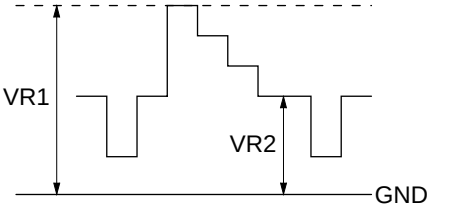
3. PAL RF INPUT

Input signal ; PAL RF color bar, 75%.
[TWIN] mode, [Service] mode.

(i) SUB CONTRAST

Condition : SAJ 00 PIC 3F
SAJ 02 COL 0
JGL 01 RGB 4

Adjusting parameter:
LEFT ; YCT 04 SCT
RIGHT ; SYC 04 SCT

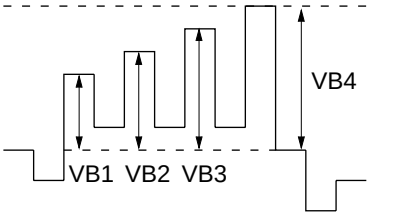


VR1 - VR2 = 1.85 ± 0.07 (Vp-p)

(ii) SUB HUE/SUB COL

Condition : SAJ 02 COL 1F
JGL 01 RGB 7

Adjusting parameter:
LEFT ; YCT 03 SCL
RIGHT ; SYC 03 SCL



VB2 = VB3 = VB4 = ± 70 mV

5-4. DEFLECTION ADJUSTMENTS

FOR DRC 1250

1. Set to Service Mode.
2. Input a Pal cross hatch/dot signal.
3. Set the following condition.
   Picture Mode to [DYNAMIC], Picture Rotation to [+/– 0] and Eco Mode to OFF.
4. Set to DRC 1250 mode.
5. Using the [1] and [4] buttons select category GEO (Service Mode).
6. Select and adjust the following items to obtain optimum image. Raise/lower the data with the [3] and [6] buttons.

1	00	VSZ	V SIZE
2	04	HSZ	H SIZE
3	01	VPS	V POSITION
4	05	HPS	H POSITION
5	03	SCO	S CORRECTION
6	02	VLN	V LINEARITY
7	0B	BOW	AFC BOW
8	06	PAP	PIN AMP
9	07	UPN	UPPER CORNER PIN
10	08	LPN	LOWER CORNER PIN
11	09	TRZ	TRAPEZIUM

7. Using the [1] and [4] buttons select category DAC (Service Mode).
8. Select and ad List the following items to obtain optimum image. Raise/lower the data with the [3] and [6] buttons.

1	01	HLN	H LINEARITY
2	00	HCT	H CENTER

9. Select “GEO 04 HSZ” with the [1] and [4] buttons.
10. Confirm the H Size condition. If necessary, adjust the H SIZE to get a best condition.
11. Write into the memory by pressing [MUTING] then [0].

FOR DRC 100 MODE

12. Set to DRC 100 mode.
13. Repeat Step 5, Step 6 and Step 7.
14. Write “DAC 00 HCT DRC 100 Mode” as “DAC 00 HCT DRC 1250 Mode”.
    Write “DAC 01 HLN DRC 100 Mode” as “DAC 01 HLN DRC 1250 Mode”.

FOR PIP MODE

15. Set to PIP mode.
16. Repeat Step 5 and Step 6.
17. Write into the memory by pressing [MUTING] then [0].

FOR TWIN MODE

18. Set to TWIN Mode.
19. Using the [1] and [4] buttons select category GEO (Service Mode).
20. Select and adjust the following items to obtain optimum image. Raise/lower the data with the [3] and [6] buttons.

1	01	VPS	V POSITION
2	05	HPS	H POSITION
3	06	PAP	PIN AMP
4	09	TRZ	TRAPEZIUM

21. Write into the memory by pressing [MUTING] then [0].

FOR INDEX M0DE

22. Set to Index Mode.
23. Repeat Step 5 and Step 6.
24. Write into the memory by pressing [MUTING] then [0].

FOR WIDE MODE

25. Set to WIDE Mode.
26. Using the [1] and [4] buttons select category GEO (Service Mode).
27. Select and adjust the following items to obtain optimum image. Raise/lower the data with the [3] and [6] buttons.

1	00	VSZ	V SIZE
2	01	VPS	V POSITION
3	05	HPS	H POSITION
4	06	PAP	PIN AMP
5	09	TRZ	TRAPEZIUM

28. Input a NTSC cross hatch/dot signal and repeat all above steps.

5-5. A BOARD ADJUSTMENT AFTER IC003 (MEMORY) REPLACEMENT

When replacing IC003 and IC004 (MEMORY), be sure to change IC001 (µ-COM) to the following at the same time.

MODEL	IC001 (µ-CON)
KV-ES29M61	CXP750096-013Q
KV-ES29N90	CXP750096-018Q

1. Enter to Service Mode.

2. Press commander buttons [5] and [0] (Data Initialize), and [2] and [0] (Data Copy) to initialize the data.

3. Call each item number and check if the respective screen shows the normal picture.
   In cases where items are not well adjusted, rectify the items with fine adjustment.
   Write the data per each item number ([MUTING] +[0]).

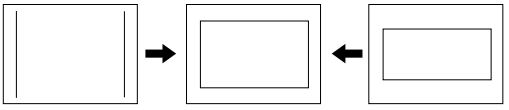
4. Select item numbers “OPB0” (OP1), “OPB1” (OP2) and respectively set the bit per model with command buttons [3] and [6].

5. Press commander buttons [8] and [0] (Test Normal) to return to the data that was set on the shipment from the factory.
   (This will also cancel Service Mode.)

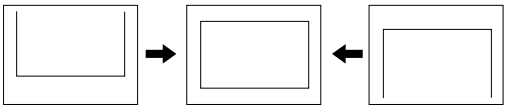
5-6. PICTURE DISTORTION ADJUSTMENT (1)

Item Number 00 – 0B

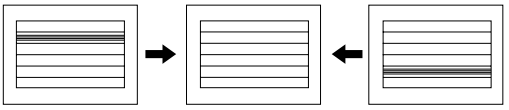
GEO 0 VSZ (V SIZE)



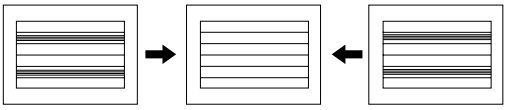
GEO 1 VPS (V POSITION)



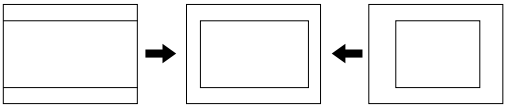
GEO 2 VLN (V LINEARITY)



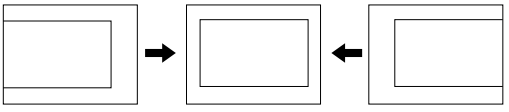
GEO 3 SCO (VERTICAL S-Correction)



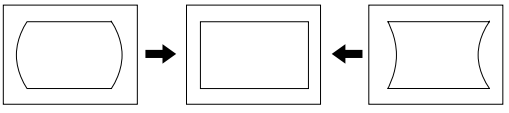
GEO 4 HSZ (H SIZE)



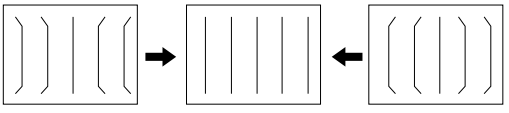
GEO 5 HPS (H POSITION)



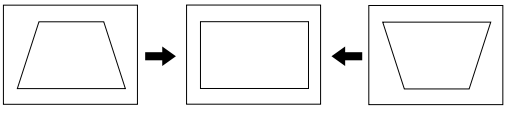
GEO 6 PAP (PIN AMP)



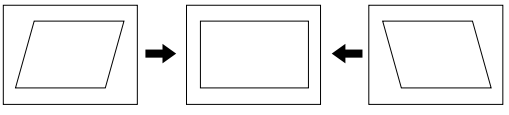
GEO 07 UPN (UPPER CORNER PIN)
GEO 08 LPN (LOWER CORNER PIN)



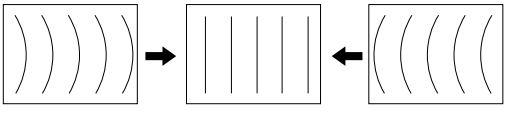
GEO 9 TRZ (TRAPEZIUM)



GEO 0A AGL (AFC.ANGLE)

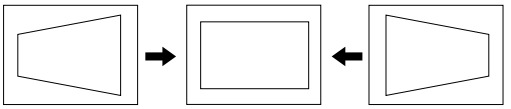


GEO 0B BOW (AFC.BOW)



PICTURE DISTORTION ADJUSTMENT (2)

H-TRAPEZOID (DAC 4 HTR)

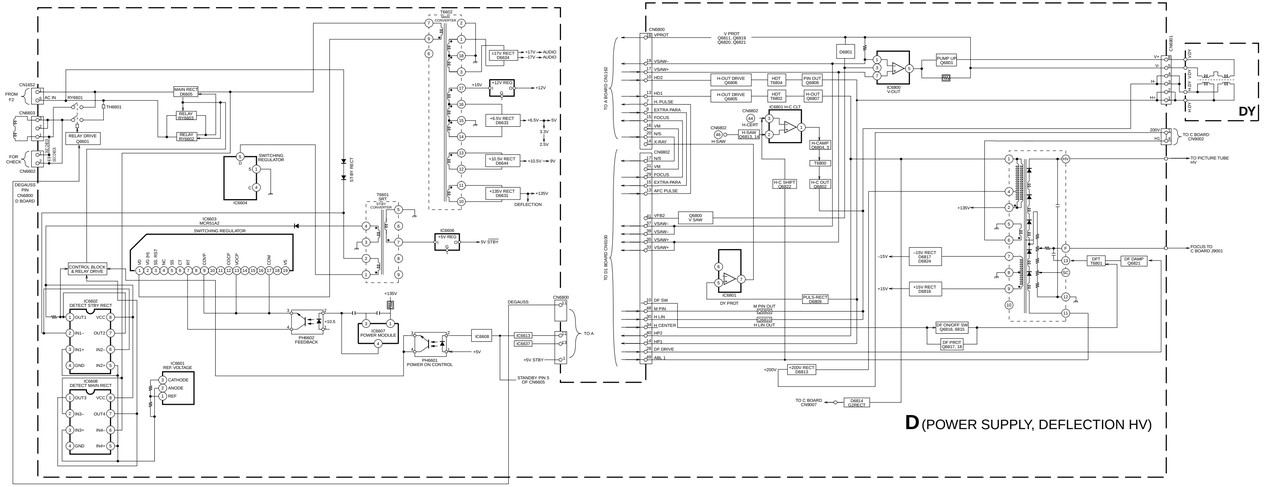


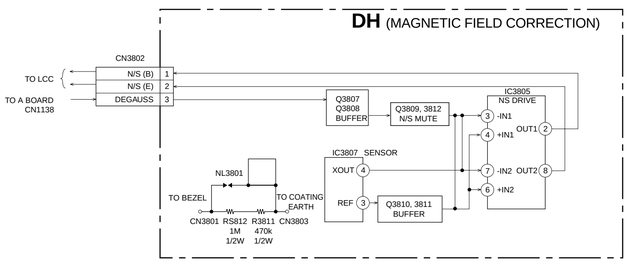
MEMO

KV-ES29M61/ES29N90 RM916 RM-958

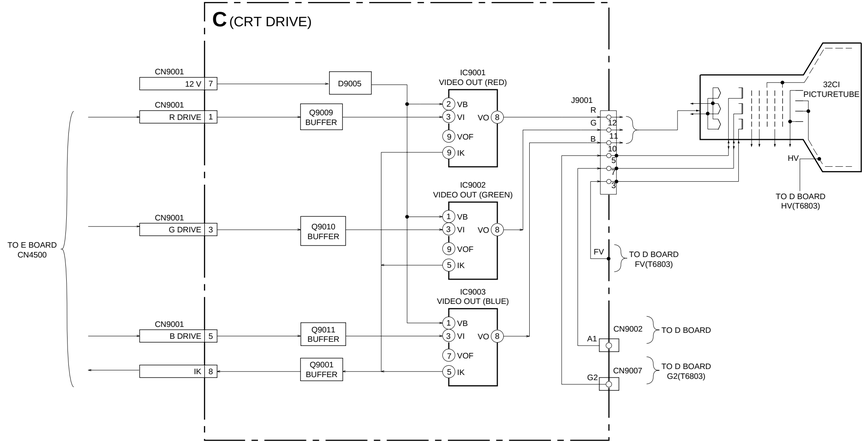
SECTION 6 DIAGRAMS

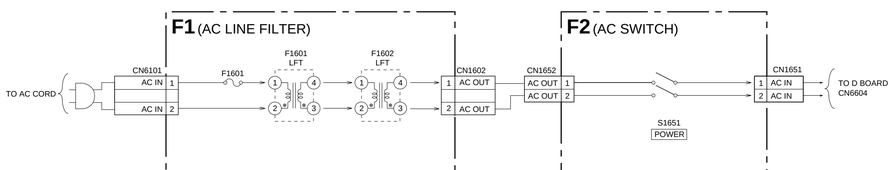
6-1. BLOCK DIAGRAM

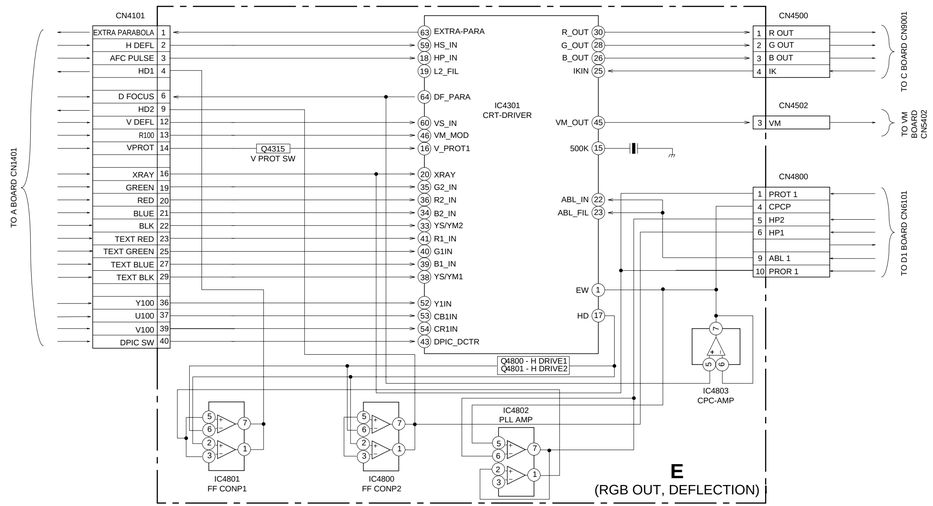


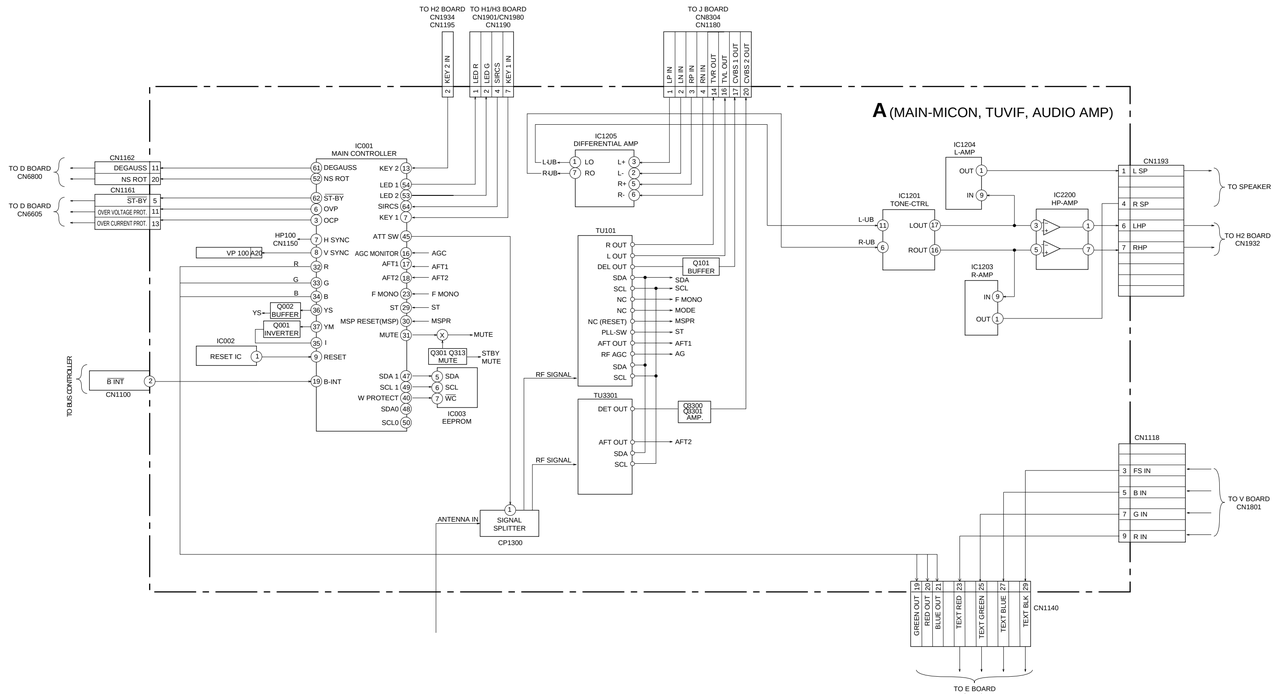


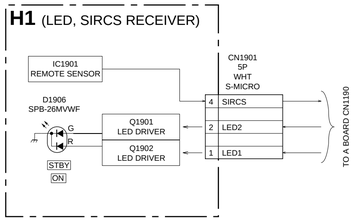
KV-ES29M61/ES29N90 RM916 RM-958
KV-ES29M61/ES29N90 RM916 RM-958

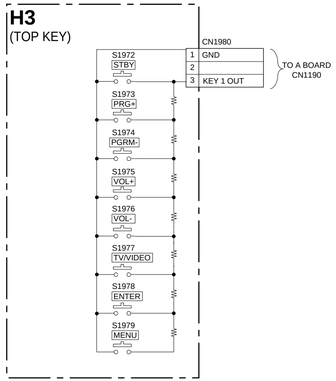


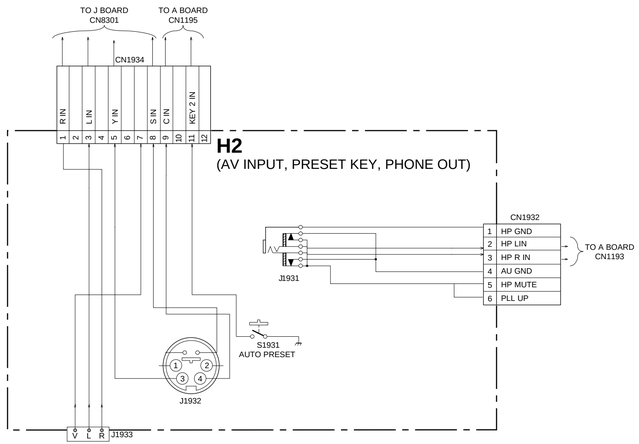


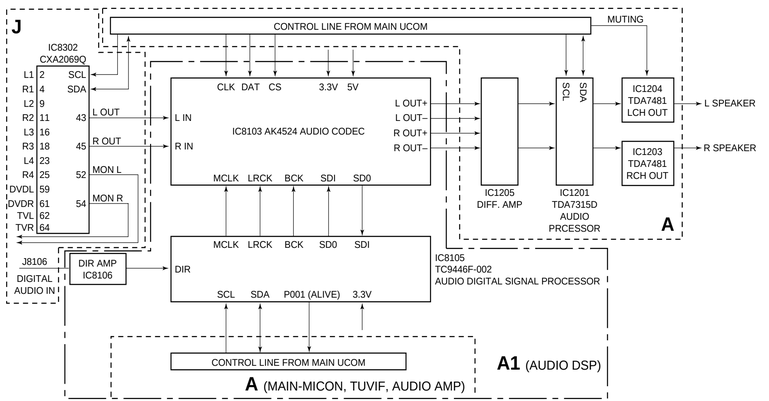

CN4101
EXTRA PARABOLA 1
H DEFL 2
AFC PULSE 3
HD1 4
D FOCUS 6
HD2 9
V DEFL 12
RI00 13
VPROT 14
XRAY 16
GREEN 19
RED 20
BLUE 21
BLK 22
TEXT RED 23
TEXT GREEN 25
TEXT BLUE 27
TEXT BLK 29
Y100 36
U100 37
V100 39
DPIC SW 40
TO A BOARD CN401
Q4315
V PROT SW
IC4301
CRT-DRIVER
63 EXTRA-PARA
59 HS_IN
18 HP_IN
19 L2_FIL
64 DF_PARA
60 VS_IN
46 VM_MOD
16 V_PROT1
20 XRAY
35 G2_IN
36 R2_IN
34 B2_IN
33 YS/YM2
41 R1_IN
40 G1IN
39 B1_IN
38 YS/YM1
52 Y1IN
53 CB1IN
54 CR1IN
43 DPIC_DCTR
R_OUT 30
G_OUT 28
B_OUT 26
IKIN 25
VM_OUT 45
500K 15
ABL_IN 22
ABL_FIL 23
EW 1
HD 17
CN4500
1 R OUT
2 G OUT
3 B OUT
4 IK
TO C BOARD CN9001
CN4502
3 VM
TO VM BOARD CN5402
CN4800
1 PROT 1
4 CPCP
5 HP2
6 HP1
9 ABL 1
10 PROR 1
TO D1 BOARD CN6101
Q4800 - H DRIVE1
Q4801 - H DRIVE2
IC4803
CPC-AMP
IC4802
PLL AMP
IC4801
FF CONP1
IC4800
FF CONP2
E
(RGB OUT, DEFLECTION)

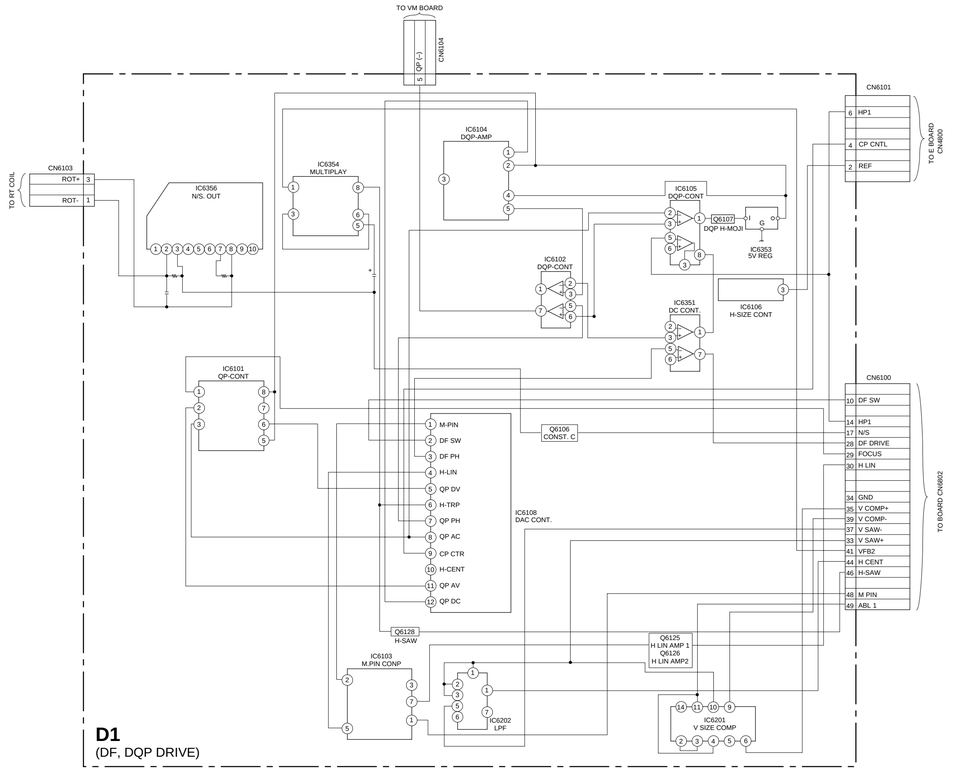

TO H2 BOARD CN1934 CN1195
TO H1/H3 BOARD CN1901/CN1980 CN1190
KEY 2 IN
LED R
LED G
SIRCS
KEY 1 IN
TO J BOARD CN8304 CN1180
LP IN
LM IN
RP IN
RM IN
TXR OUT
TXL OUT
CVBS 1 OUT
CVBS 2 OUT
A (MAIN-MICON, TUVIF, AUDIO AMP)
TO D BOARD CN6800
CN1162
DEGAUSS 11
NS ROT 20
TO D BOARD CN6605
CN1161
ST-BY 5
OVER VOLTAGE PROT. 11
OVER CURRENT PROT. 13
IC001
MAIN CONTROLLER
DEGAUSS 61
NS ROT 52
ST-BY 62
O/VP 6
OCP 3
H SYNC 7
V SYNC 8
R 32
G 33
B 34
YS 36
YM 37
I 35
RESET 9
B-INT 19
KEY 2 12
LED 1 54
LED 2 53
SIRCS 64
KEY 1 7
ATT SW 45
AGC MONITOR 16
AFT1 17
AFT2 18
F MONO 23
ST 29
MSP RESET(MSP) 30
MUTE 31
SDA 1 47
SCL 1 49
W PROTECT 46
SDA0 48
SCL0 50
HP100 CN1150
VP 100 K20
Q002 BUFFER
Q001 INVERTER
IC002
RESET IC
AGC
AFT1
AFT2
F MONO
ST
MSPR
MUTE
Q301 Q313 MUTE
STBY MUTE
IC003
EEPROM
TO B.B.CONTROLLER
B INT 2
CN1100
IC1205
DIFFERENTIAL AMP
L-UB 1
R-UB 7
LO 2
RO 6
L+ 3
L- 4
R+ 5
R- 6
TU101
R OUT
L OUT
DEL OUT
SDA
SCL
NC
NC
NC (RESET)
PLL-SW
AFT OUT
RF AGC
SDA
SCL
Q101 BUFFER
SDA
SCL
F MONO
MODE
MSPR
ST
AFT1
AG
RF SIGNAL
TU3301
DET OUT
AFT OUT
SDA
SCL
Q3300 Q3301 AMP
AFT2
RF SIGNAL
ANTENNA IN
1
SIGNAL SPLITTER
CP1300
IC1204
L-AMP
OUT 1
IN 9
IC1201
TONE-CTRL
L-UB 11
R-UB 6
LOUT 17
ROUT 16
IC2200
HP-AMP
IC1203
R-AMP
IN 9
OUT 1
CN1193
1 L SP
4 R SP
6 LHP
7 RHP
TO SPEAKER
TO H2 BOARD CN1932
CN1118
3 FS IN
5 B IN
7 G IN
9 R IN
TO V BOARD CN1801
GREEN OUT 19
RED OUT 20
BLUE OUT 21
23
TEXT RED 25
TEXT GREEN 27
TEXT BLUE 29
TEXT BLK
CN1140
TO E BOARD CN1401


H1 (LED, SIRCS RECEIVER)
IC1901
REMOTE SENSOR
D1906
SPB-28MVWF
G
R
Q1901
LED DRIVER
Q1902
LED DRIVER
CN1901
5P
WHT
S-MICRO
4 SIRCS
2 LED2
1 LED1
TO A BOARD CN1190
STBY
ON

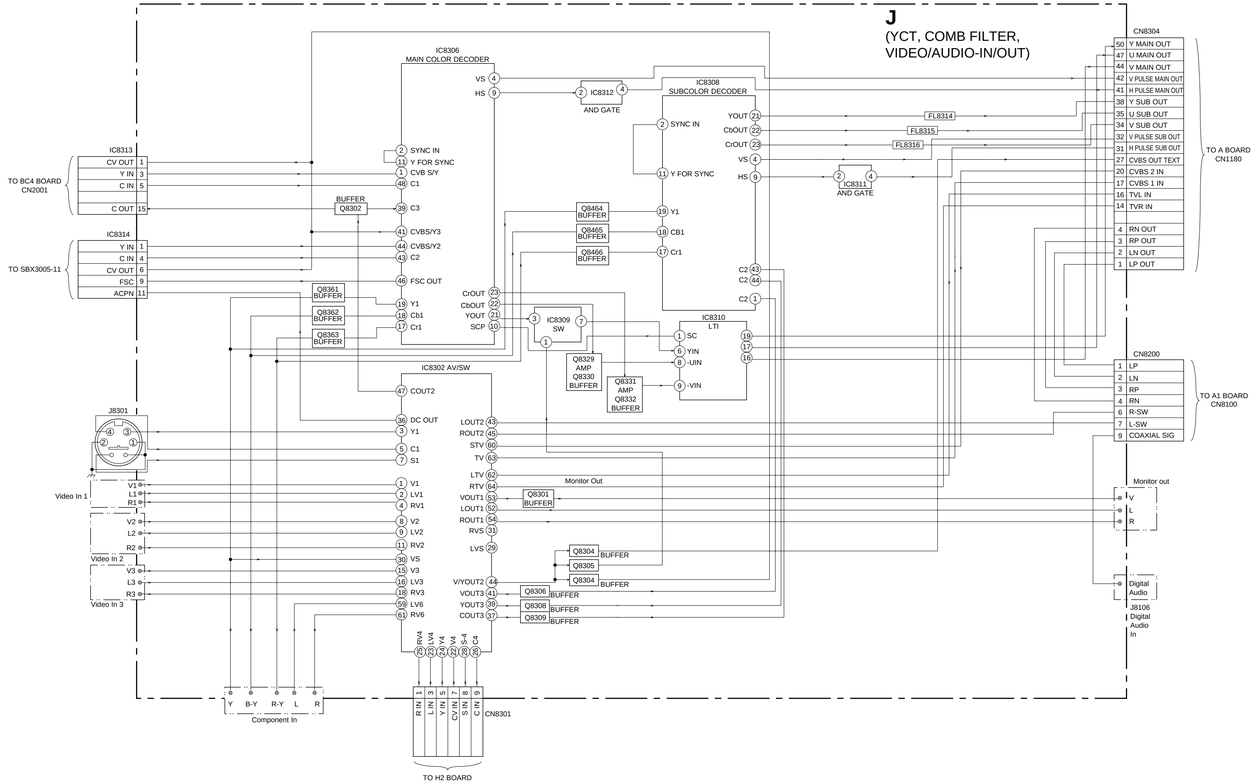

H3
(TOP KEY)
S1972 STBY
S1973 PRG+
S1974 PGRM-
S1975 VOL+
S1976 VOL-
S1977 TV/VIDEO
S1978 ENTER
S1979 MENU
CN1980
1 GND
2
3 KEY 1 OUT
TO A BOARD CN1190


TO J BOARD CN8301
TO A BOARD CN1195
CN1934
R IN
L IN
V IN
S IN
C IN
KEY 2
H2
(AV INPUT, PRESET KEY, PHONE OUT)
CN1932
1 HP GND
2 HP LIN
3 HP R IN
4 AU GND
5 HP MUTE
6 PLL UP
TO A BOARD CN1193
J1931
S1931
AUTO PRESET
J1932
J1933

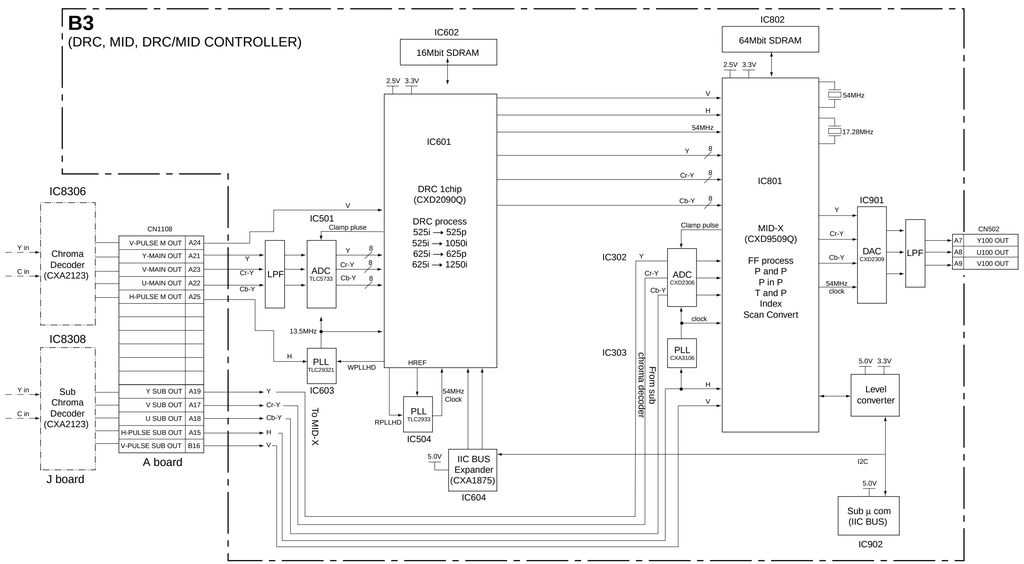

J
CONTROL LINE FROM MAIN UCOM
MUTING
IC8302
CXA2069Q
L1 2 SCL
R1 4 SDA
L2 9
R2 11 43 L OUT
L3 16
R3 18 45 R OUT
L4 23
R4 25 52 MON L
DVDL 59
DVDR 61 54 MON R
TVL 62
TVR 64
CLK DAT CS 3.3V 5V
L IN
R IN
IC8103 AK4524 AUDIO CODEC
L OUT+
L OUT–
R OUT+
R OUT–
MCLK LRCK BCK SDI SD0
IC1205
DIFF. AMP
SCL
SDA
IC1201
TDA7315D
AUDIO
PRCESSOR
IC1204
TDA7481
LCH OUT
IC1203
TDA7481
RCH OUT
L SPEAKER
R SPEAKER
A
J8106
DIGITAL
AUDIO IN
DIR AMP
IC8106
DIR
MCLK LRCK BCK SD0 SDI
SCL SDA P001 (ALIVE) 3.3V
IC8105
TC9446F-002
AUDIO DIGITAL SIGNAL PROCESSOR
CONTROL LINE FROM MAIN UCOM
A (MAIN-MICON, TUVIF, AUDIO AMP)
A1 (AUDIO DSP)

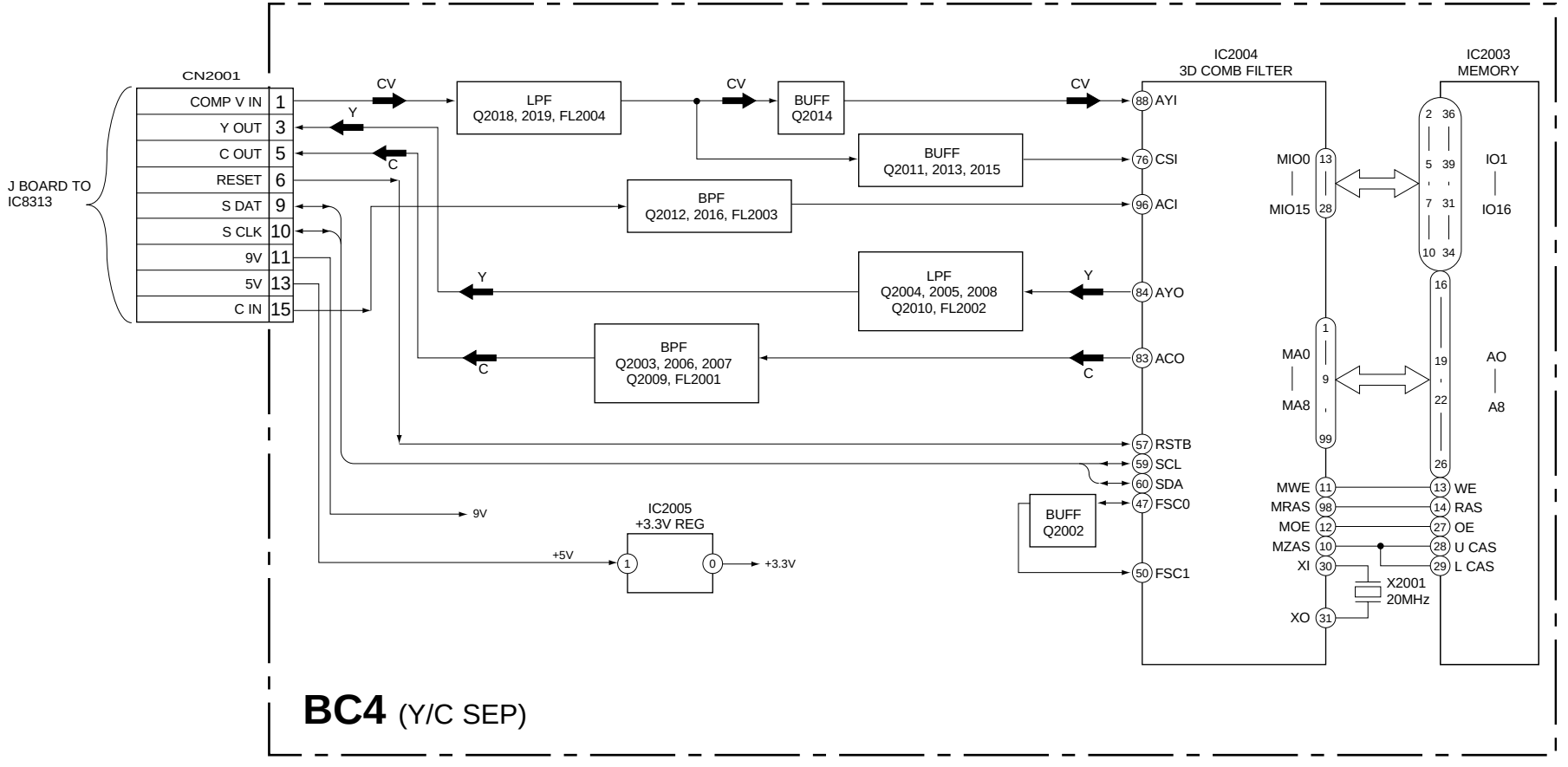

TO VM BOARD
CN6104
CP CNTL
REF
CN6103
ROT+ 3
ROT- 1
TO RT COIL
IC6356
N/S. OUT
IC6354
MULTIPLAY
IC6104
DQP-AMP
IC6105
DQP-CONT
Q6107
DQP H-MOJI
IC6353
5V REG
IC6102
DQP-CONT
IC6351
DC CONT.
IC6106
H-SIZE CONT
IC6101
QP-CONT
Q6106
CONST. C
IC6108
DAC CONT.
Q6128
H-SAW
IC6103
M.PIN CONP
IC6202
LPF
Q6125
H LIN AMP 1
Q6126
H LIN AMP2
IC6201
V SIZE COMP
CN6101
6 HP1
4 CP CNTL
2 REF
TO E BOARD CN4800
CN6100
10 DF SW
14 HP1
17 N/S
28 DF DRIVE
29 FOCUS
30 H LIN
34 GND
35 V COMP+
39 V COMP-
37 V SAW-
33 V SAW+
41 VFB2
44 H CENT
46 H-SAW
48 M.PIN
49 ABL 1
TO BOARD CN8802
M-PIN
DF SW
DF PH
H-LIN
QP DV
H-TRP
QP PH
QP AC
CP CTR
H-CENT
QP AV
QP DC
D1
(DF, DQP DRIVE)

KV-ES29M61/ES29N90 RM916 RM-958

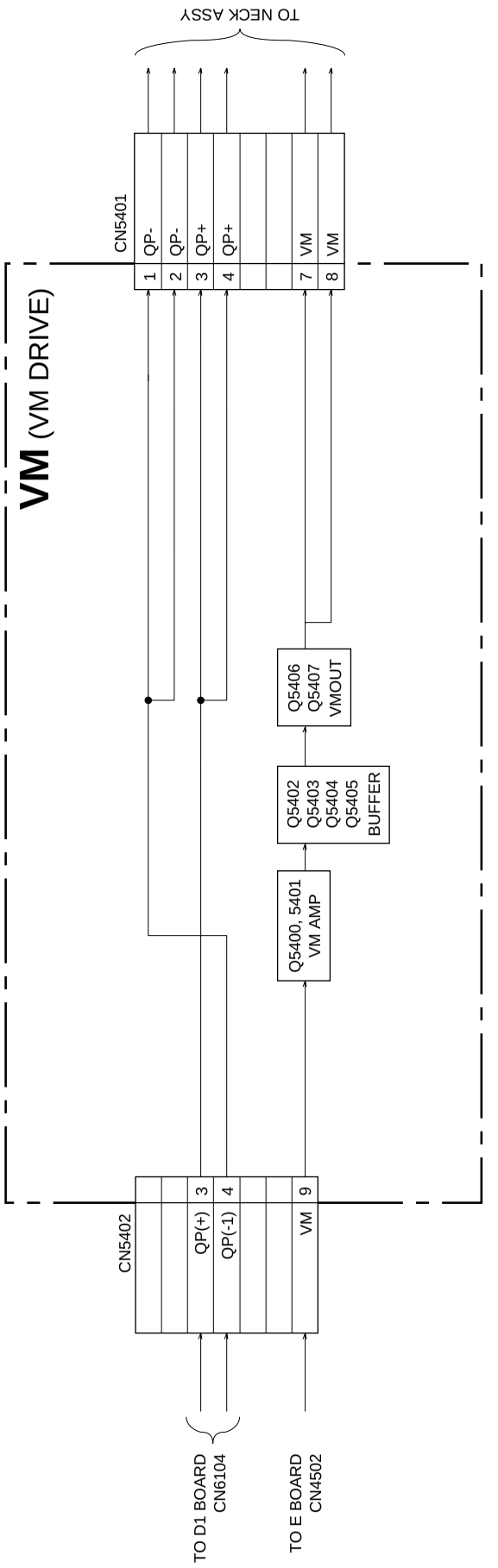


KV-ES29M61/ES29N90 RM916 RM-958
KV-ES29M61/ES29N90 RM916 RM-958

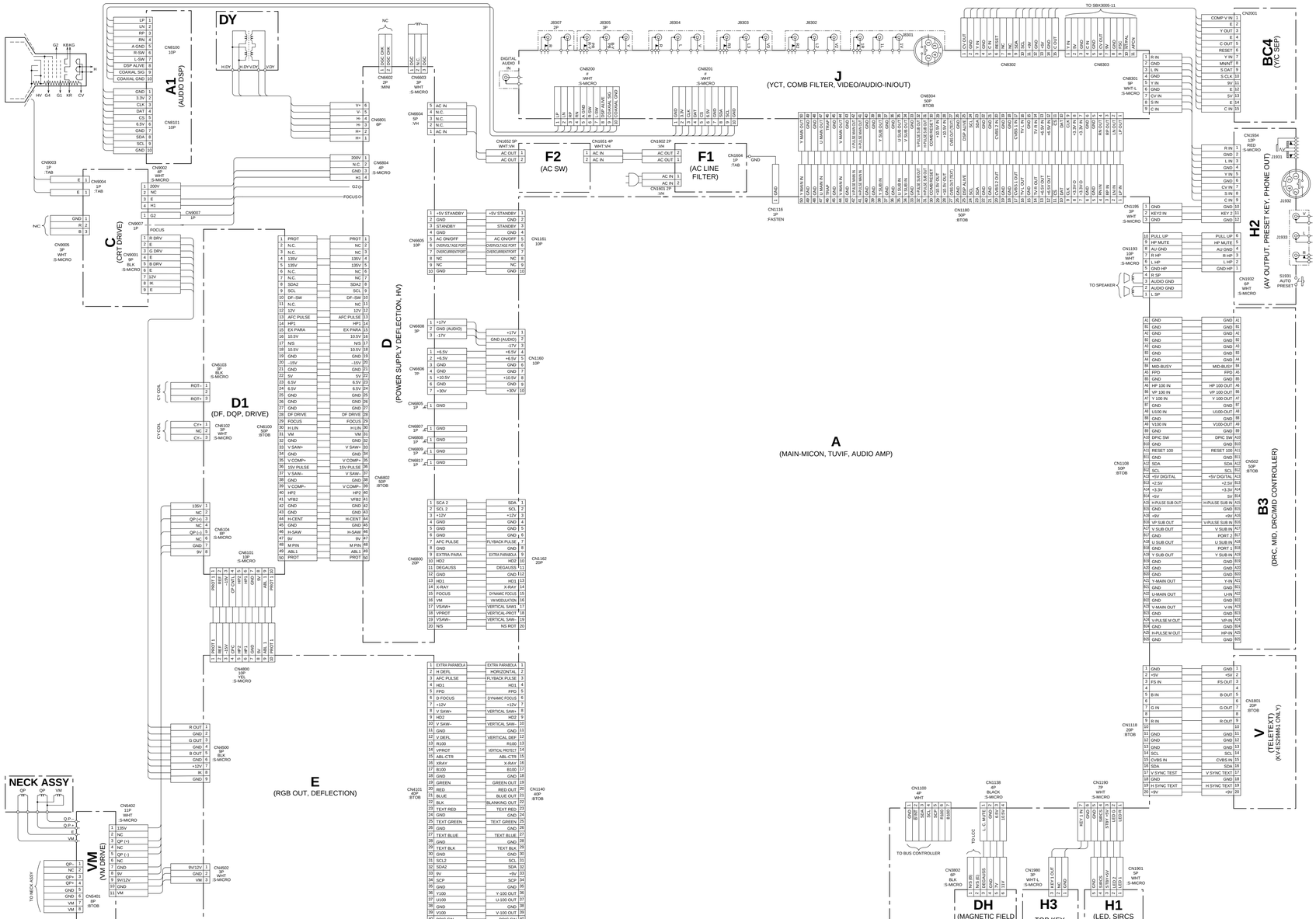



CN2001
COMP V IN 1
Y OUT 3
C OUT 5
RESET 6
S DAT 9
S CLK 10
9V 11
5V 13
C IN 15
J BOARD TO IC8313
CV
Y
C
LPF Q2018, 2019, FL2004
BUFF Q2014
BUFF Q2011, 2013, 2015
BPF Q2012, 2016, FL2003
LPF Q2004, 2005, 2008 Q2010, FL2002
BPF Q2003, 2006, 2007 Q2009, FL2001
IC2004 3D COMB FILTER
IC2003 MEMORY
88 AYI
76 CSI
96 ACI
84 AYO
83 ACO
57 RSTB
59 SCL
60 SDA
47 FSC0
50 FSC1
MIO0 13
MIO15 28
IO1
IO16
MA0 1
MA8 9
AO
A8
MWE 11
MRAS 98
MOE 12
MZAS 10
XI 30
XO 31
WE 13
RAS 14
OE 27
U CAS 28
L CAS 29
X2001 20MHz
BUFF Q2002
IC2005 +3.3V REG
9V
+5V
+3.3V

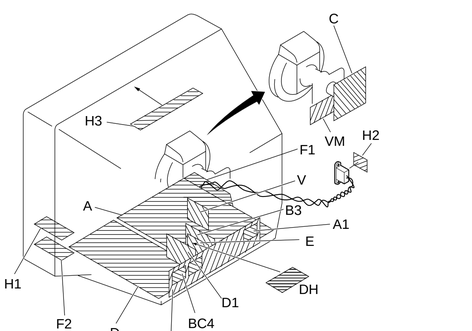
BC4 (Y/C SEP)


TO NECK ASSY
CN5401
1 QP-
2 QP-
3 QP+
4 QP+
7 VM
8 VM
VM (VM DRIVE)
Q5406
Q5407
VMOUT
Q5402
Q5403
Q5404
Q5405
BUFFER
Q5400, 5401
VM AMP
CN5402
3 QP(+)
4 QP(-1)
9 VM
TO D1 BOARD
CN6104
TO E BOARD
CN4502

6-2. FRAME SCHEMETIC DIAGRAMS



6-3. CIRCUIT BOARDS LOCATION



6-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

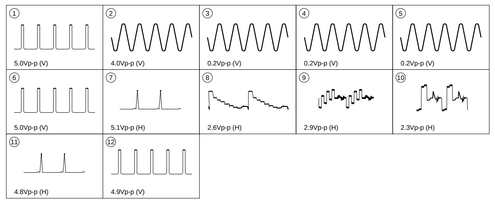
- All capacitors are in µF unless otherwise noted.
- All electrolytic capacitors are rated at 50V unless otherwise noted.
- All resistors are in ohms.
  kΩ = 1000Ω, MΩ = 1000kΩ
- Indication of resistance which does not have rating electrical power is as follows.
  Pitch: 5 mm
  Rating electrical power 1/4W (CHIP: 1/10W)
- 47Ω/1W : nonflammable resistor.
- △ : internal component.
- ▭ : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B unless otherwise noted.
- **Readings are taken with a color-bar signal input.**
  no mark : PAL
  ( ) : SECAM
  [ ] : NTSC 3.58
  « » : NTSC 4.43
- **Readings are taken with a 10 MΩ digital multimeter.**
- **Voltage are dc with respect to ground unless otherwise noted.**
- **Voltage variations may be noted due to normal production tolerances.**
- **All voltages are in V.**
- ⚠ **: Cannot be measured.**
- **Circled numbers are waveform references.**
- **▪ ▪ ▪ ▪ : B + bus.**
- **▬▬ : B – bus.**
- ⇨ **: signal path.**

Reference information

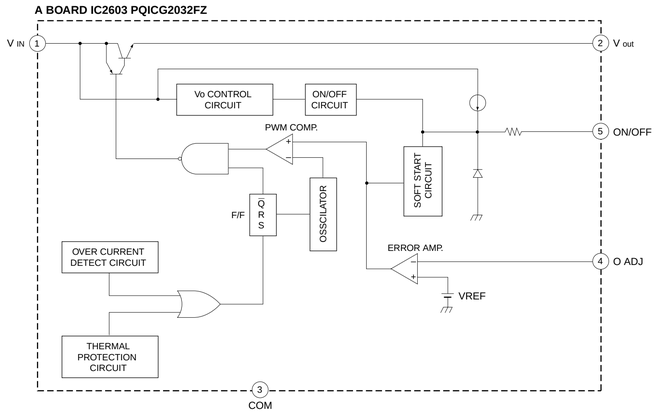
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: *	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note: The component identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

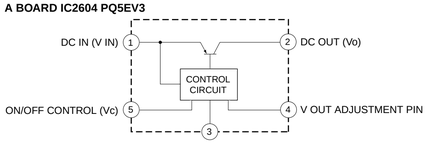
A BOARD WAVEFORMS



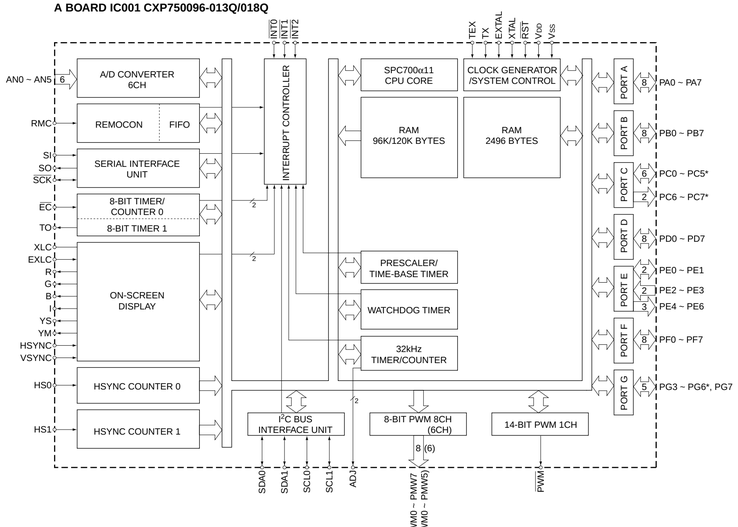
A BOARD IC2603 PQICG2032FZ



A BOARD IC2604 PQ5EV3



A BOARD IC001 CXP750096-013Q/018Q



A BOARD ✻ MARK LIST

	KV-ES29M61	KV-ES29N90
C101	#	10 50
C3302	#	10 50
C3337	#	0.04725: CHIP
CN1118	20P	#
D100	MA111-(K8)	#
IC001	CXP750096-013Q	CXP750096-018Q
IC100	S-80743AL-A7-S	#
JR102	SHORT 0	#
R007	#	220: CHIP
R009	#	4.7: CHIP
R030	#	100: CHIP
R036	220: CHIP	27: CHIP
R037	220: CHIP	27: CHIP
R049	#	39: RN: CP
R050	#	39: RN: CP
R100	#	100: CHIP
R101	100: CHIP	#
R102	100: CHIP	#
R104	#	100: CHIP
R106	#	1K: CHIP
R114	#	4.7: CHIP
R115	#	4.7: CHIP
R3362	100:CHIP	#
TU101	BTF-WG442	BTF-WG411
TU3301	BTF-LG436	BTF-FA401

Note) The parts indicated as "#" in this circuit diagram are not listed here, as they are not used for these models.

A BOARD A

IC		TRANSISTOR	
IC001	B-9	Q1201	D-12
IC002	C-8	Q1206	D-13
IC003	A-8	Q1209	D-13
IC1201	E-13	Q1210	D-13
IC1203	F-13	Q1205	E-13
IC1204	B-13	DIODE	
IC1205	F-12	D1208	E-13
IC2200	E-12	D1209	D-11
IC2600	E-8		
IC2601	G-10		
IC2603	F-9		
IC2604	F-8		

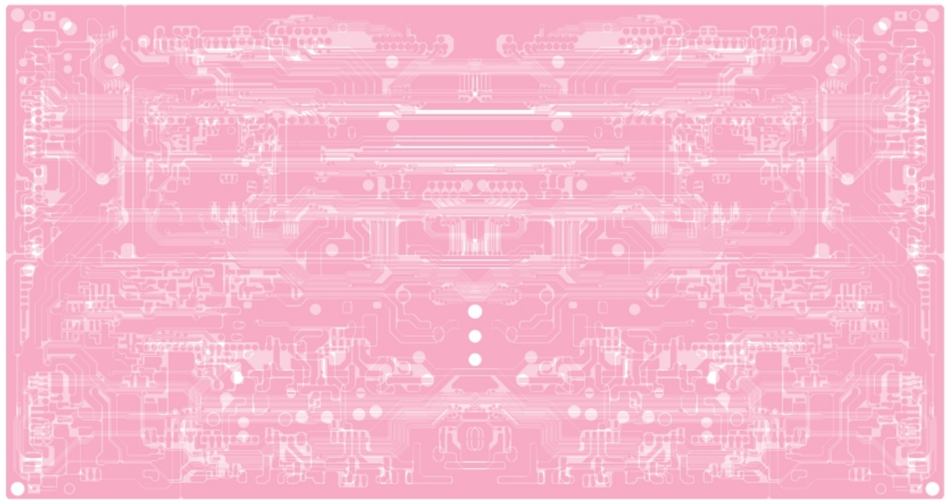
A BOARD B

IC		DIODE	
IC100	G-10	D300	A-9
IC901	I-13	D301	B-9
IC1203	G-1	D302	B-6
IC1204	B-1	D1205	F-1
IC2600	E-7	D2200	E-3
IC2601	F-4	D2201	D-3
IC2603	F-5		
IC2604	F-6		
TRANSISTOR			
Q101	G-11		
Q301	D-4		
Q313	D-4		
Q902	I-13		
Q2200	D-3		
Q2201	E-4		
Q3300	F-11		

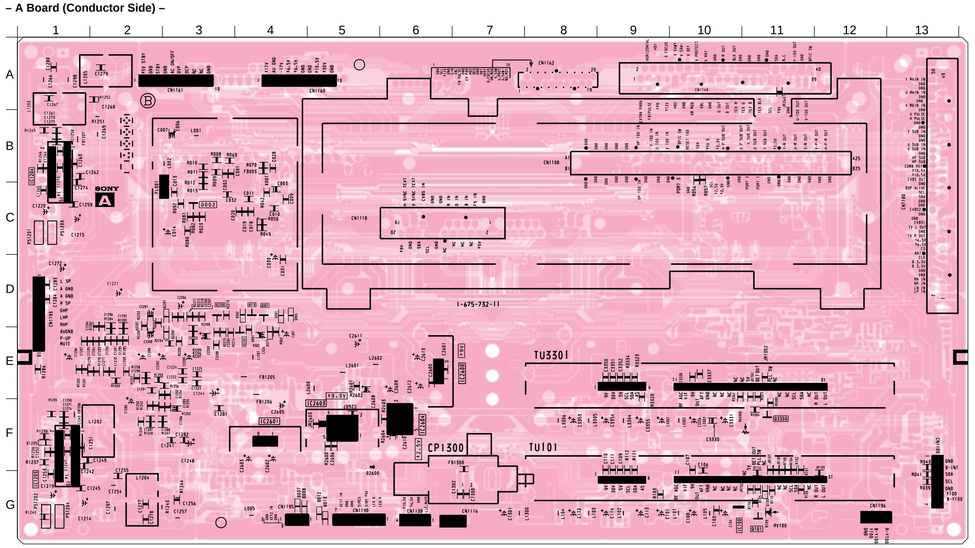
PRINTED WIRING BOARDS

A [MAIN-MICON, TUVIF, AUDIO AMP]

– A Board (Component Side) –

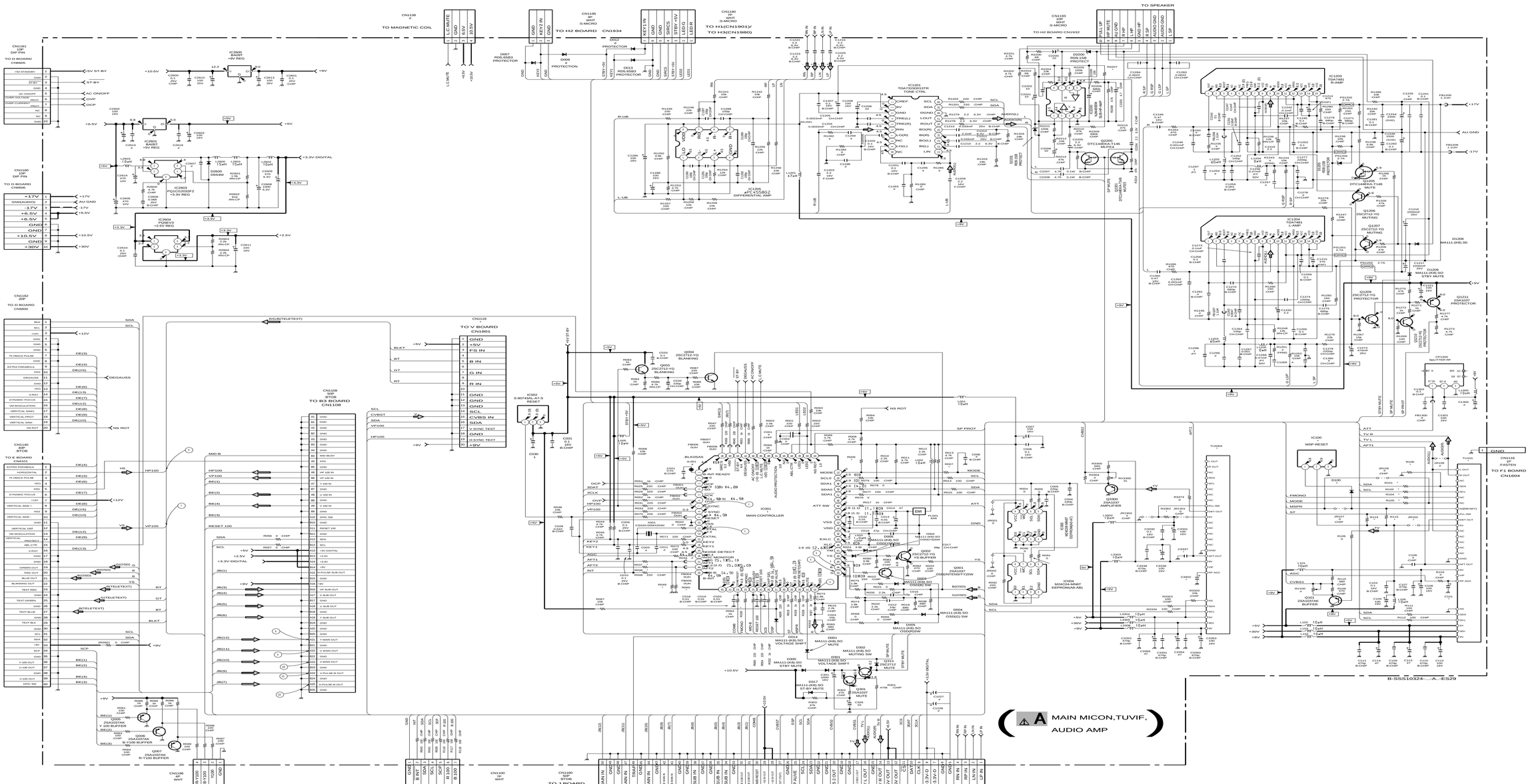


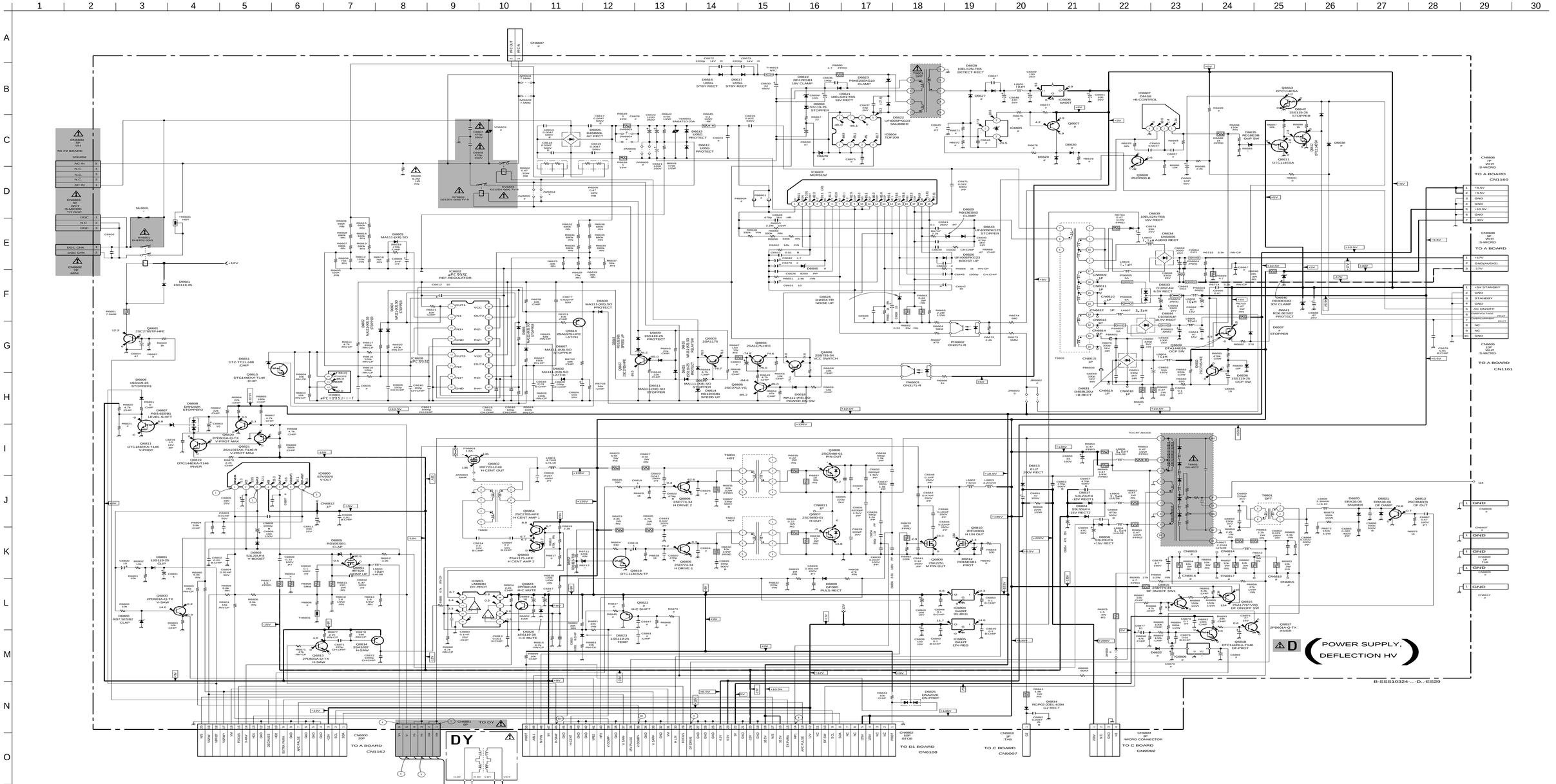
– A Board (Conductor Side) –



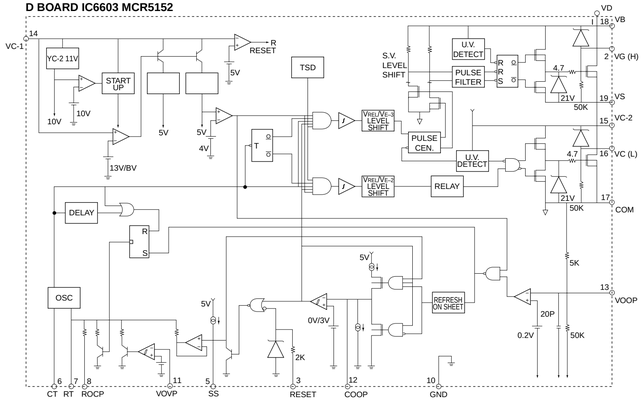
• : Pattern from the side which enables seeing.
• : Pattern from the rear side.

(1) Schematic Diagram of A Board

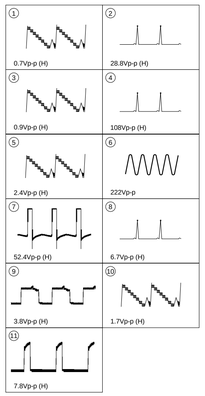



POWER SUPPLY, DEFLECTION HV
B-SSS10324-...-D..-ES29
TO A BOARD CN1162
TO DY
TO D1 BOARD CN6100
TO C BOARD CN9007
TO C BOARD CN9002
TO A BOARD CN1160
TO A BOARD CN1161

D BOARD IC6603 MCR5152



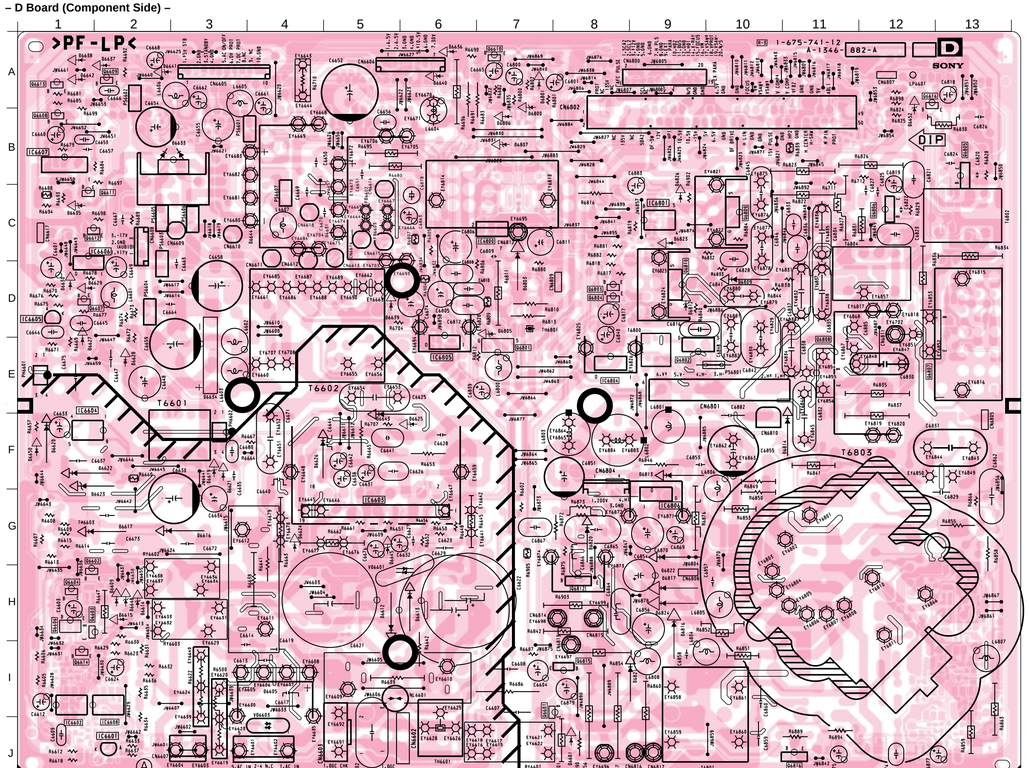
D BOARD WAVEFORMS



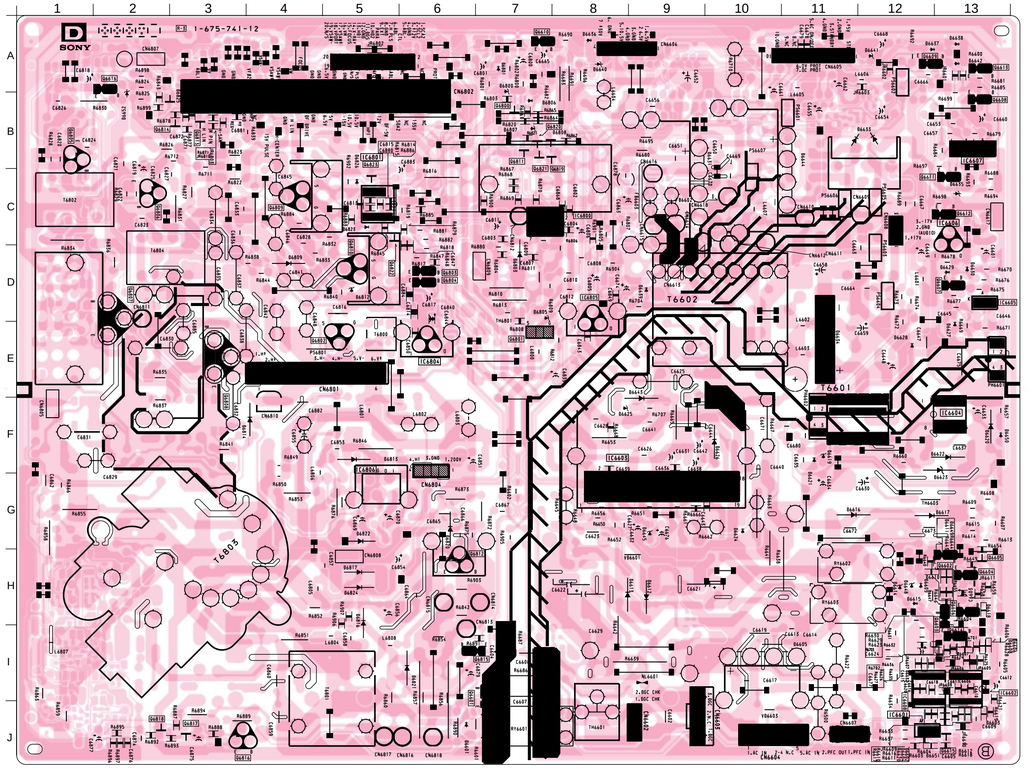
PRINTED WIRING BOARDS

D [POWER SUPPLY, DEFLECTION HV]

– D Board (Component Side) –



– D Board (Conductor Side) –



• :Pattern from the side which enables seeing.
• :Pattern from the rear side.

D BOARD ✻ MARK LIST

	KV-ES29M61	KV-ES29N90
C6602	0.033 630	0.022 400
NL6601	GAP, SPARK	#
R6693	20K : RN	18K : RN
R6712	18K : RN	20K : RN
R6715	#	10K

Note) The parts indicated as "#" in this circuit diagram are not listed here, as they are not used for these models.

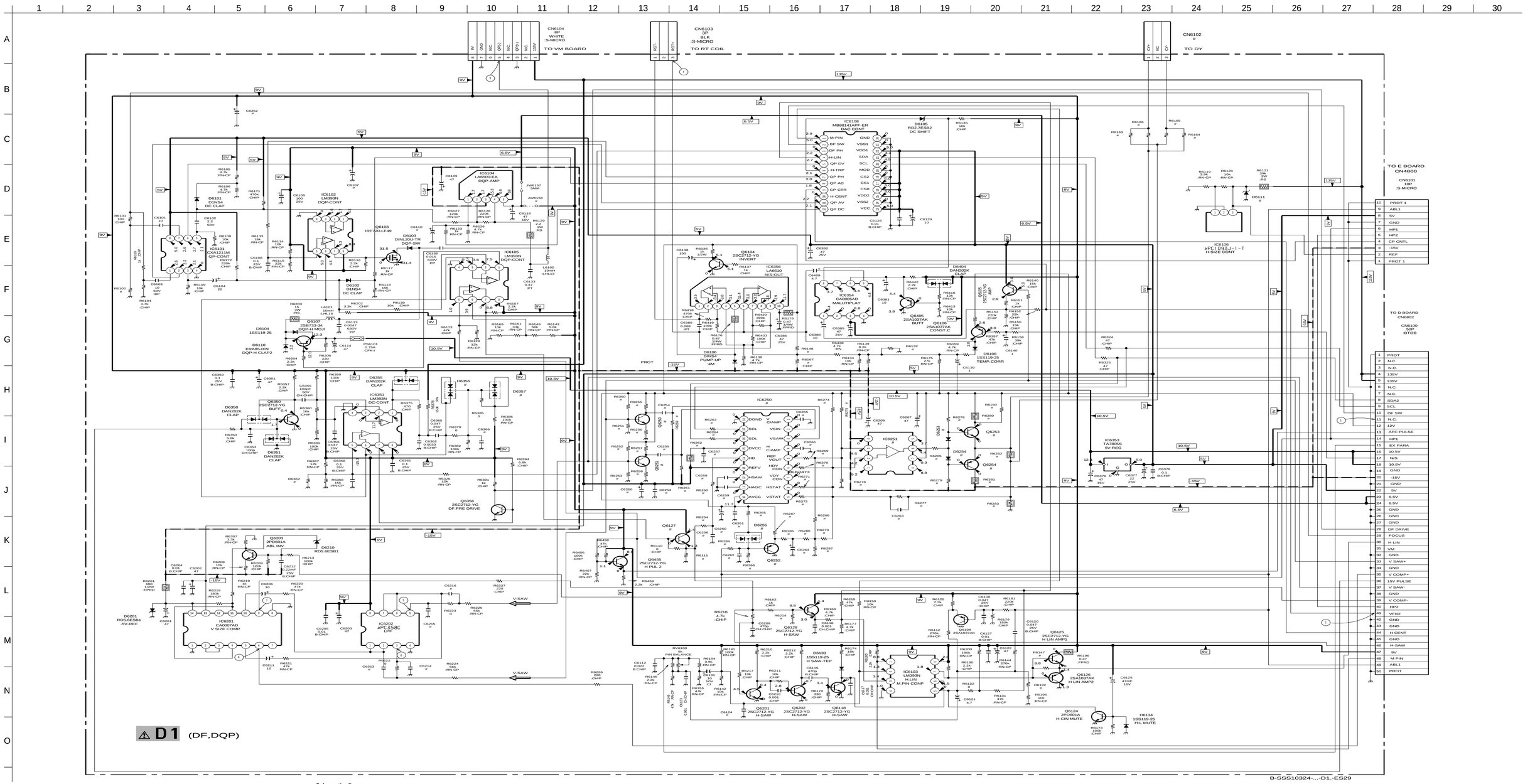
D BOARD (Component Side)

IC	DIODE		D6642	A-1
			D6643	F-5
IC6601 J-2	D6601 J-8		D6644	C-4
IC6602 J-2	D6605 I-4		D6645	G-5
IC6603 G-5	D6609 H-2		D6648	H-2
IC6604 E-1	D6612 H-5		D6650	F-1
IC6605 D-1	D6613 H-6		D6800	B-7
IC6606 C-1	D6614 H-2		D6801	A-7
IC6607 B-1	D6615 H-2		D6803	D-7
IC6800 C-7	D6616 G-3		D6805	E-7
IC6801 C-9	D6617 G-2		D6806	B-7
IC6804 E-8	D6619 F-3		D6807	B-7
IC6805 E-6	D6620 F-1		D6809	D-10
IC6806 C-9	D6621 F-3		D6812	D-9
TRANSISTOR	D6622 F-2		D6813	F-9
	D6623 G-2		D6814	F-11
Q6601 1-8	D6624 G-4		D6816	I-9
Q6602 G-2	D6625 F-6		D6817	H-9
Q6603 H-2	D6626 F-4		D6820	H-8
Q6604 H-1	D6627 E-1		D6821	I-9
Q6606 H-1	D6628 E-2		D6822	G-9
Q6607 D-2	D6629 D-2		D6823	C-9
Q6608 B-1	D6630 D-1		D6824	H-10
Q6609 A-2	D6631 C-5		D6826	C-9
Q6610 A-7	D6633 B-3		D6805	B-12
Q6611 C-2	D6634 E-3		D6806	C-12
Q6612 C-1	D6635 C-1		D6807	B-12
Q6613 A-1	D6636 A-6		D6808	E-11
Q6801 E-7	D6637 A-2		D6809	C-10
Q6802 E-9	D6638 A-1		D6810	D-10
Q6803 D-8	D6639 D-5		D6812	H-8
Q6804 D-8	D6640 A-6		D6814	I-1
	D6641 A-3		D6815	I-8
			D6816	I-11

D BOARD (Conductor Side)

IC	Q6807 D-2	D6617 G-12	D6807 B-7
	Q6808 E-3	D6619 F-11	D6808 B-8
IC6601 J-12	Q6809 C-4	D6620 F-13	D6809 D-4
IC6602 I-13	Q6810 D-5	D6621 G-11	D6812 D-5
IC6603 F-8	Q6811 C-7	D6622 F-13	D6813 F-5
IC6604 F-13	Q6812 H-6	D6624 G-10	D6814 F-4
IC6605 D-13	Q6815 I-7	D6625 F-9	D6816 I-5
IC6606 C-13	Q6816 J-3	D6626 F-10	D6817 H-5
IC6607 B-13	Q6817 J-3	D6627 E-13	D6820 H-6
IC6800 C-8	Q6818 J-3	D6628 E-12	D6821 I-6
IC6801 B-5	Q6819 C-8	D6629 D-13	D6822 G-5
IC6804 E-6	Q6820 B-7	D6630 D-13	D6824 H-5
IC6805 D-8	Q6821 C-7	D6631 B-10	D6825 B-3
IC6806 F-5	Q6822 D-5	D6632 I-13	D6826 C-5
TRANSISTOR	Q6825 C-5	D6634 E-11	
	DIODE	D6635 C-13	
Q6601 J-6		D6636 A-8	
Q6602 G-12	D6601 J-6	D6637 A-13	
Q6603 H-13	D6602 J-13	D6638 A-13	
Q6604 H-13	D6603 J-13	D6639 D-9	
Q6605 H-13	D6604 J-12	D6640 A-8	
Q6606 H-13	D6605 I-11	D6641 A-12	
Q6607 D-13	D6606 I-13	D6642 A-13	
Q6608 B-13	D6607 I-12	D6643 E-9	
Q6611 C-12	D6608 I-13	D6644 C-11	
Q6612 C-13	D6609 H-12	D6645 H-9	
Q6614 I-13	D6610 G-13	D6648 H-12	
Q6800 B-7	D6611 G-13	D6649 G-13	
Q6801 D-7	D6612 H-9	D6650 F-13	
Q6802 E-4	D6613 H-9	D6800 B-7	
Q6803 D-6	D6614 H-12	D6801 A-7	
Q6804 D-6	D6615 H-12	D6803 D-7	
Q6806 C-2	D6616 G-11	D6805 E-7	
		D6806 B-7	

(3) Schematic Diagram of D1 Board

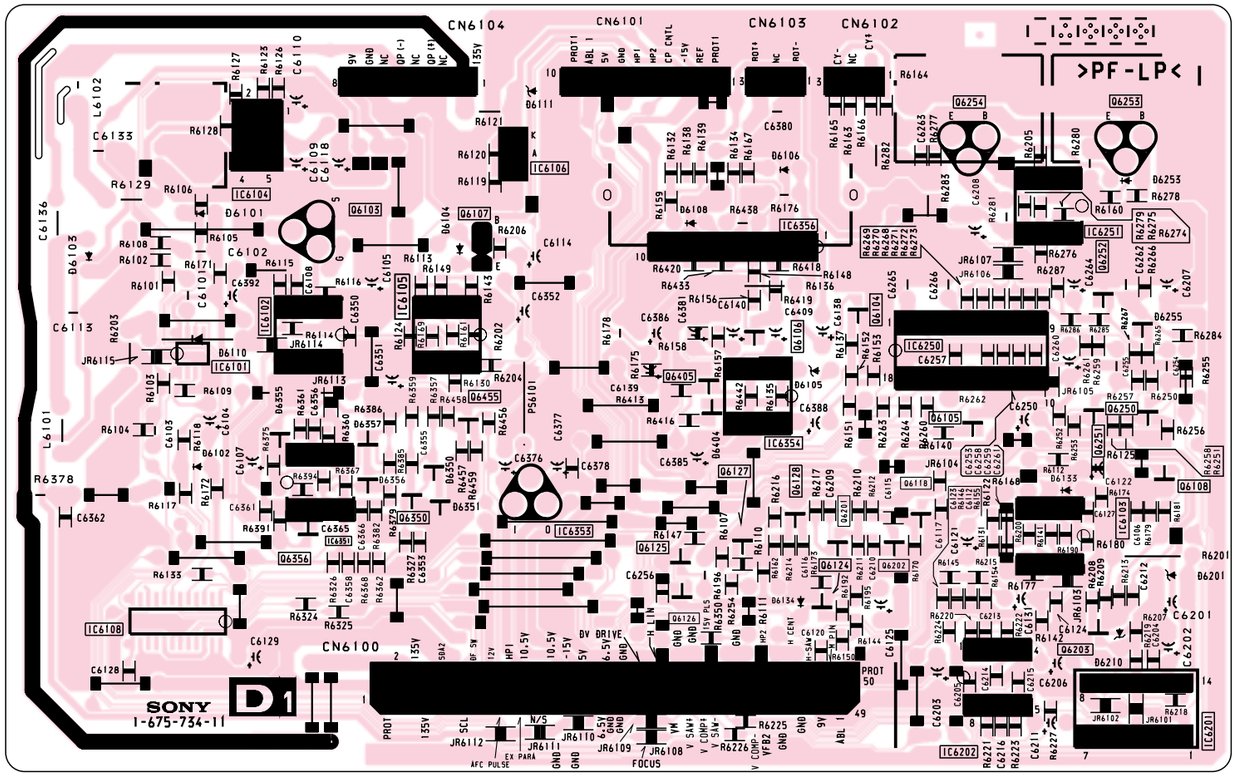


KV-ES29M61/ES29N90 RM916 RM-958

PRINTED WIRING BOARD

D1 [DF, DQP DRIVE]

– D1 Board –



D1 BOARD WAVEFORMS

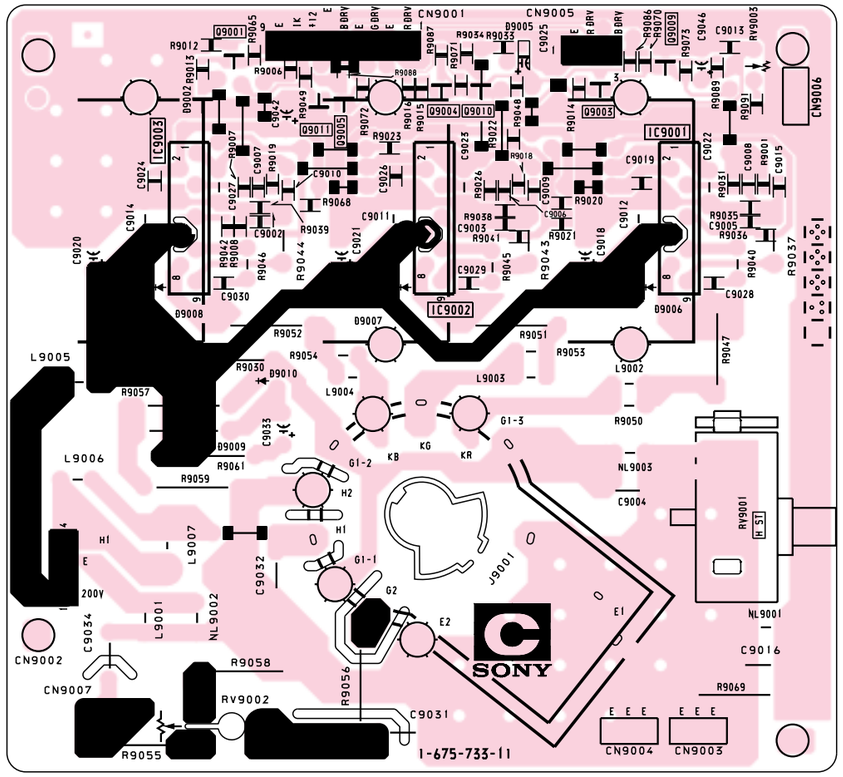
① 80Vp-p (H)	② 0.5Vp-p
③ 294Vp-p	④ 8.8Vp-p
⑤ 74Vp-p	⑥ 6.6Vp-p
⑦ 280Vp-p	⑧ 8.5Vp-p

KV-ES29M61/ES29N90 RM916 RM-958

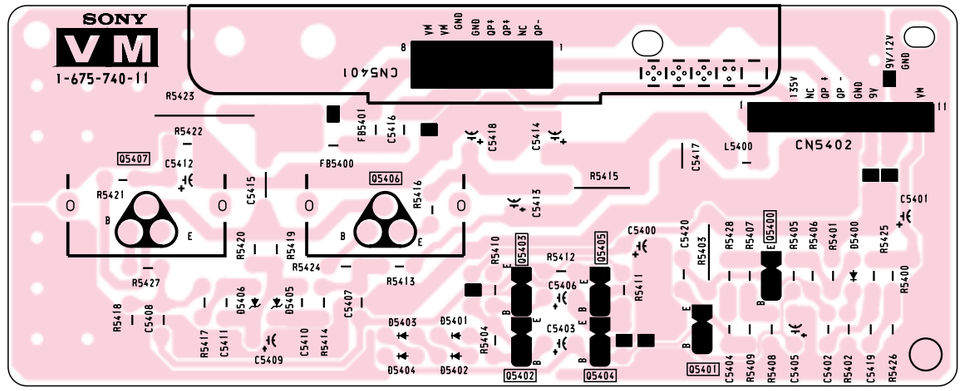
PRINTED WIRING BOARDS

C [CRT DRIVE] **VM** [VM DRIVE] **F1** [AC LINE FILTER]

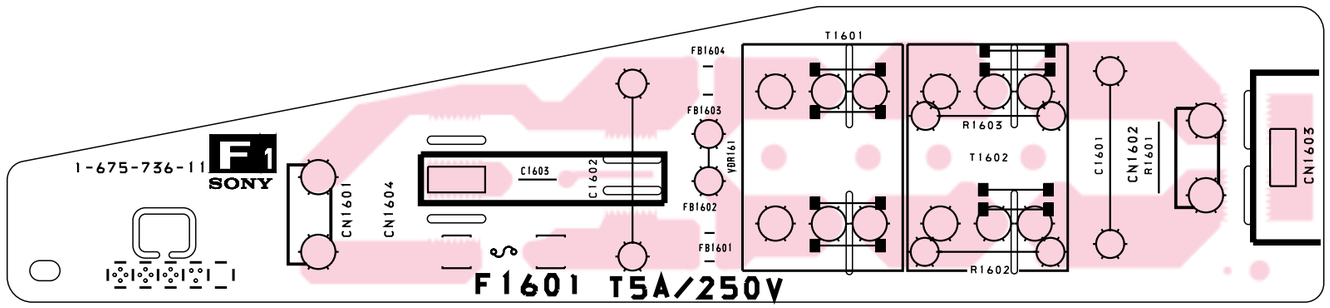
– C Board –

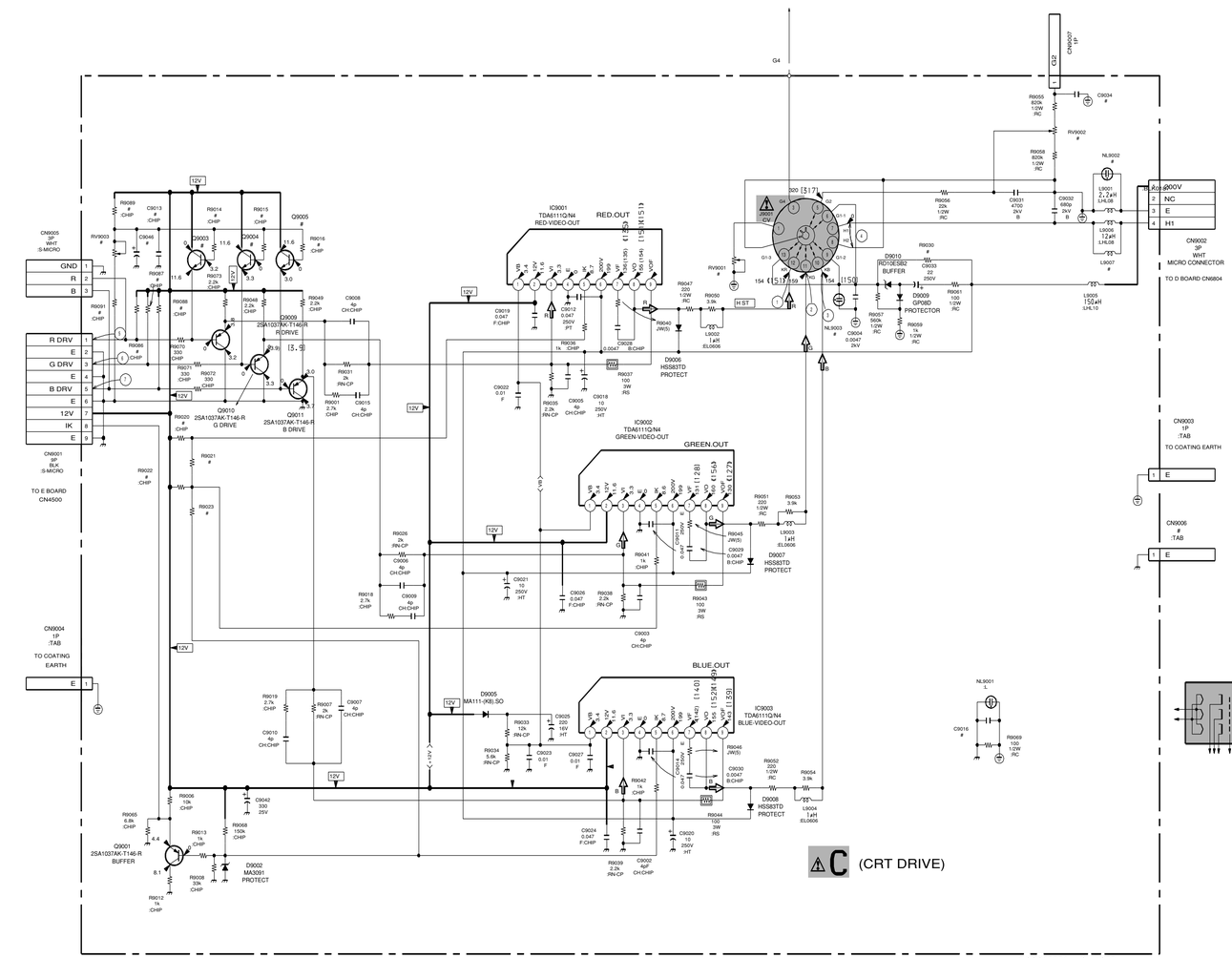


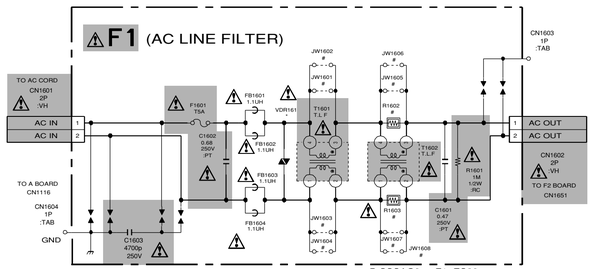
– VM Board –



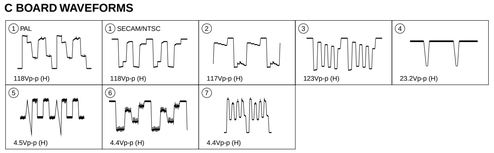
– F1 Board –







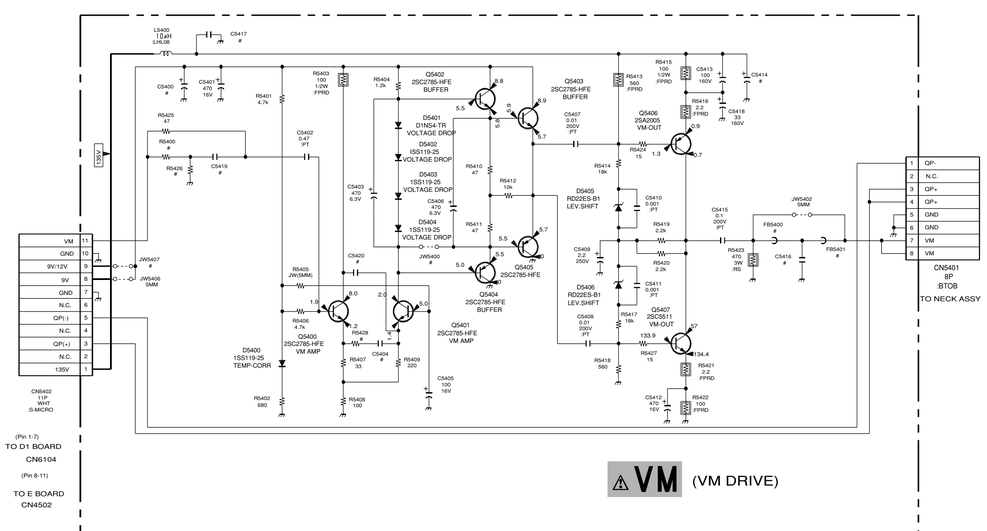
C BOARD WAVEFORMS



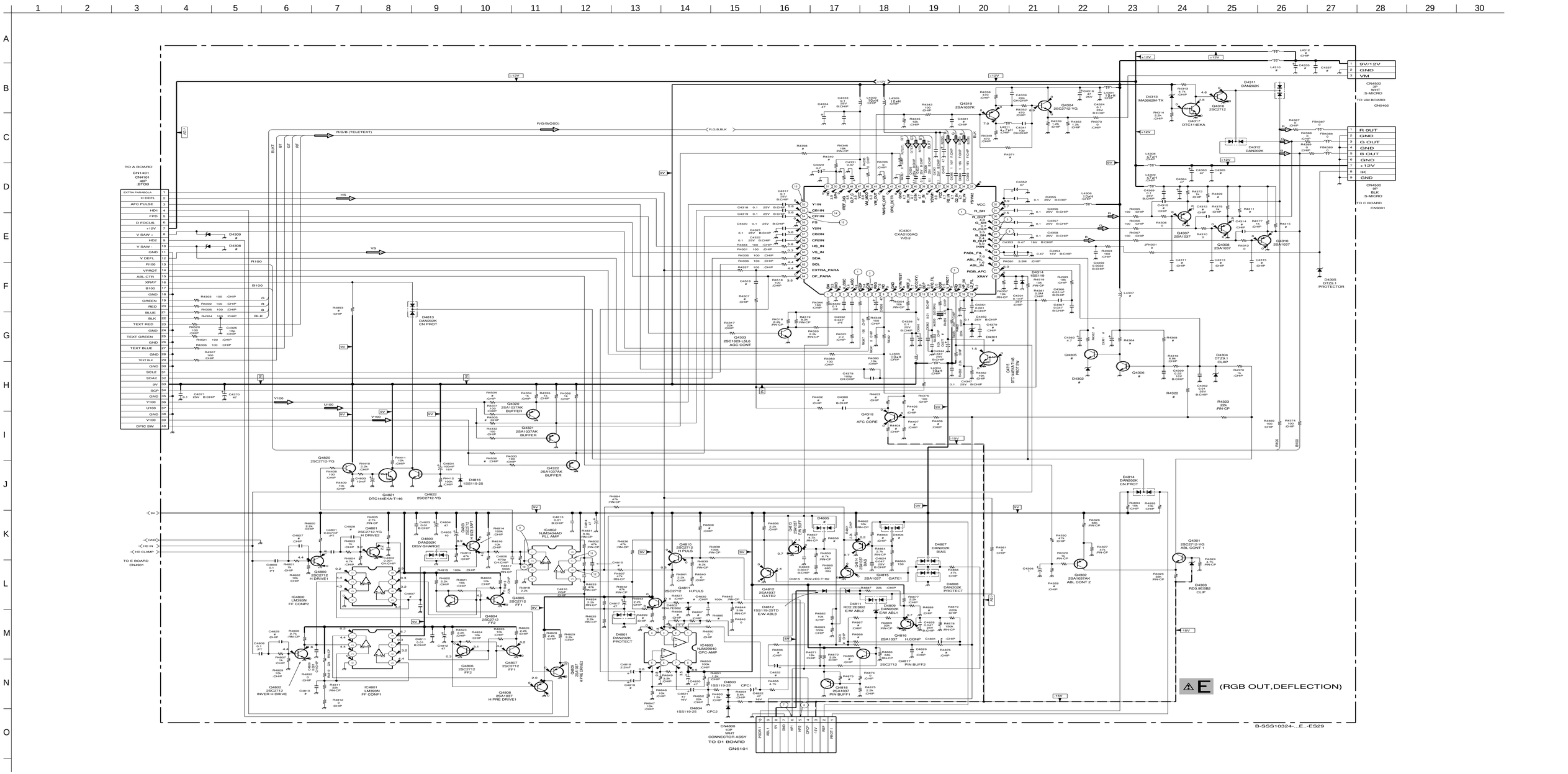
F1 BOARD ✻ MARK LIST

VDR161	KV-ES29M61	KV-ES29N90
	ERZV14D621	TNR14V271K660

Note) The parts indicated as "✻" in this circuit diagram are not listed here, as they are not used for these models.


VM (VM DRIVE)
B-SSSAG3-...-VM.-ES29
CN5401 8P :BTOB TO NECK ASSY
CN5402 11P WHT :S-MICRO
(Pin 1-7) TO D1 BOARD CN6104
(Pin 8-11) TO E BOARD CN4502

(5) Schematic Diagram of E Board



Schematic diagrams
C F1 VM boards

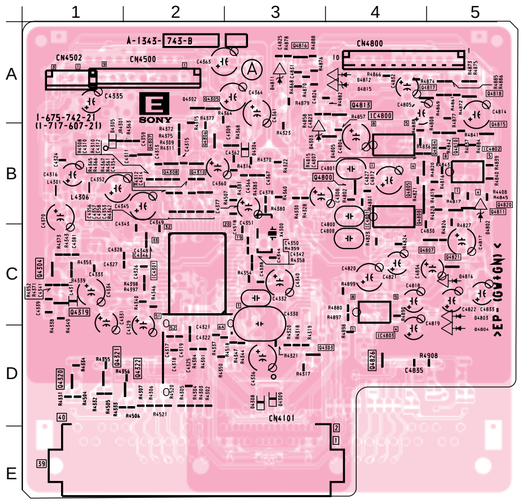
Schematic diagram
E board

KV-ES29M61/ES29N90
RM916 RM-958
KV-ES29M61/ES29N90
RM916 RM-958

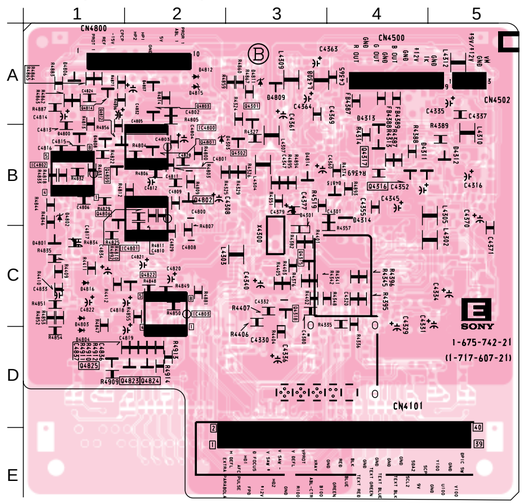
PRINTED WIRING BOARDS

E [RGB OUT, DEFLECTION]

– E Board (Component Side) –



– E Board (Conductor Side) –



• :Pattern from the side which enables seeing.
• :Pattern from the rear side.

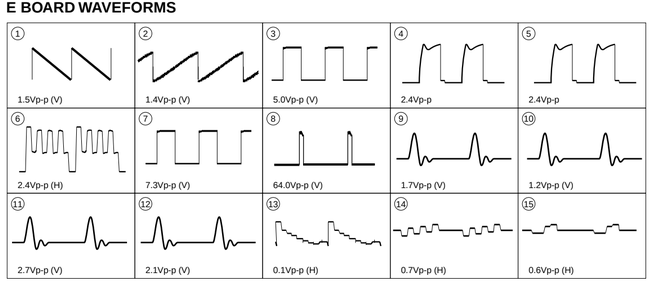
E BOARD (Component Side)

IC		Q4320	D-1	DIODE	
		Q4321	D-1		
IC4301	C-2	Q4322	D-2	D4302	A-2
IC4800	A-4	Q4800	B-4	D4303	B-3
IC4801	C-4	Q4804	B-5	D4304	B-3
IC4802	B-5	Q4805	B-4	D4305	B-12
IC4803	D-4	Q4806	B-2	D4308	D-3
TRANSISTOR		Q4807	C-5	D4309	D-3
		Q4808	B-4	D4802	B-5
Q4303	D-4	Q4810	B-5	D4805	B-4
Q4304	C-1	Q4811	B-5	D4806	C-5
Q4305	A-2	Q4813	A-4	D4811	A-3
Q4307	B-2	Q4815	B-5	D4812	A-4
Q4308	B-2	Q4816	A-3	D4815	A-4
Q4310	B-2	Q4817	A-5		
Q4319	C-1	Q4818	A-5		

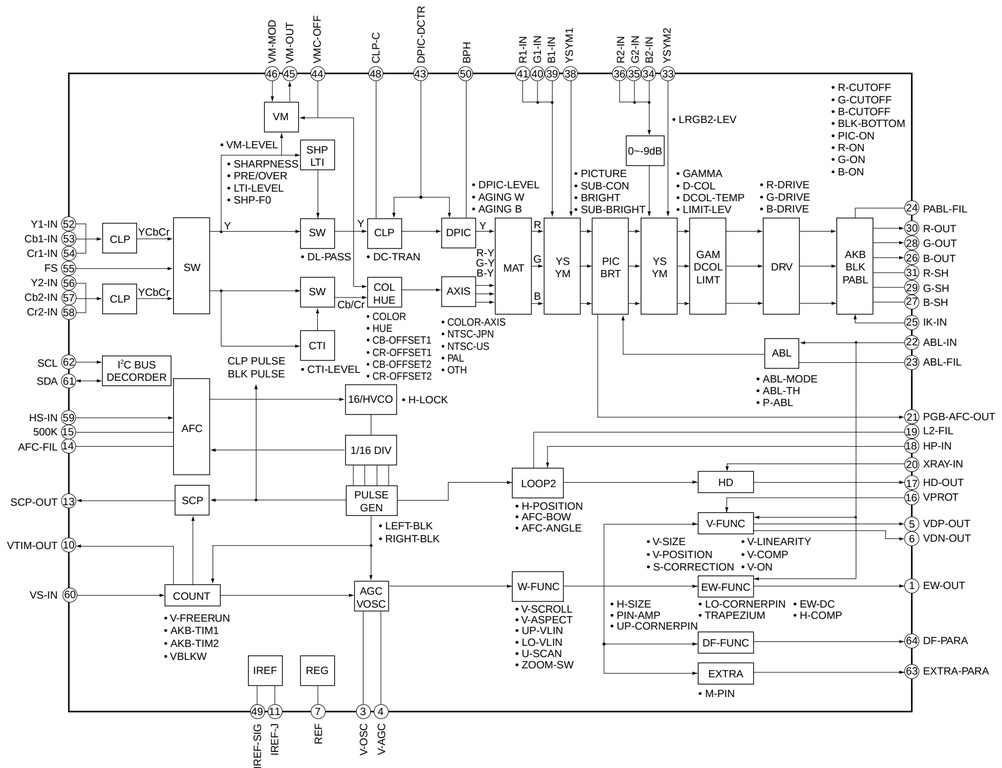
E BOARD (Conductor Side)

IC		Q4806	B-12	D4806	A-1
		Q4809	B-1	D4807	A-2
IC4800	B-2	Q4812	A-1	D4808	B-1
IC4801	C-2	Q4814	A-1	D4809	A-3
IC4802	B-1	DIODE		D4811	A-3
IC4803	C-2			D4812	A-2
TRANSISTOR		D4301	C-3	D4813	B-4
		D4303	B-3	D4814	B-3
Q4301	A-3	D4311	B-5	D4815	A-2
Q4302	B-3	D4312	B-5	D4819	C-3
Q4315	C-3	D4313	A-4		
Q4316	B-4	D4800	B-1		
Q4317	B-4	D4801	C-1		
Q4318	D-3	D4802	B-1		
Q4801	B-2	D4803	C-1		
Q4802	B-2	D4804	C-1		

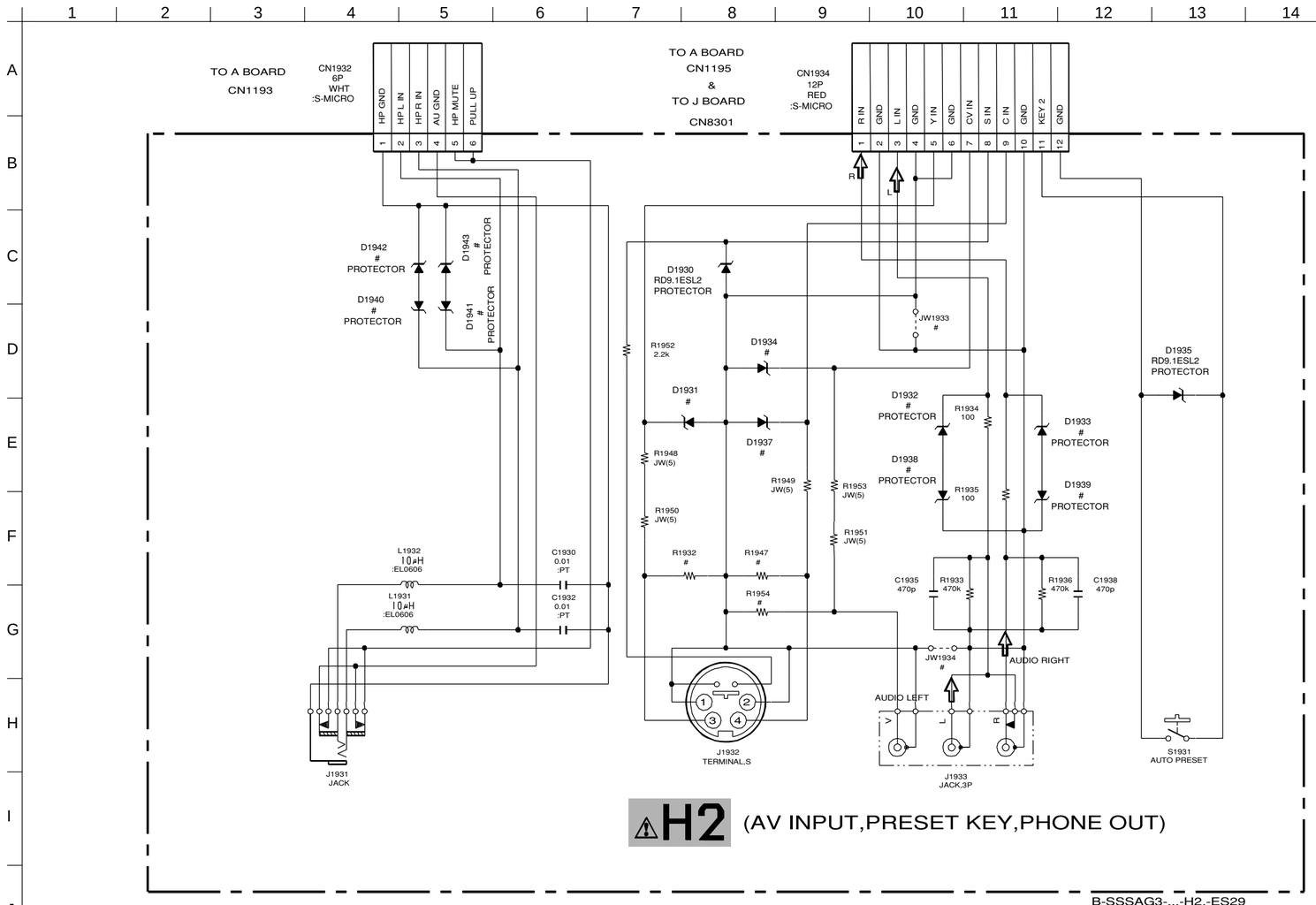
E BOARD WAVEFORMS

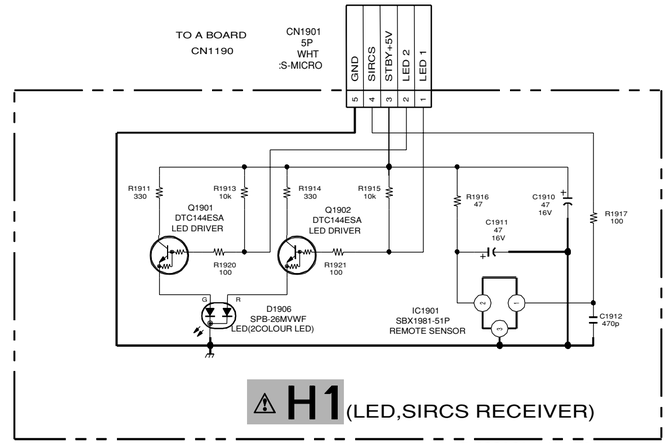


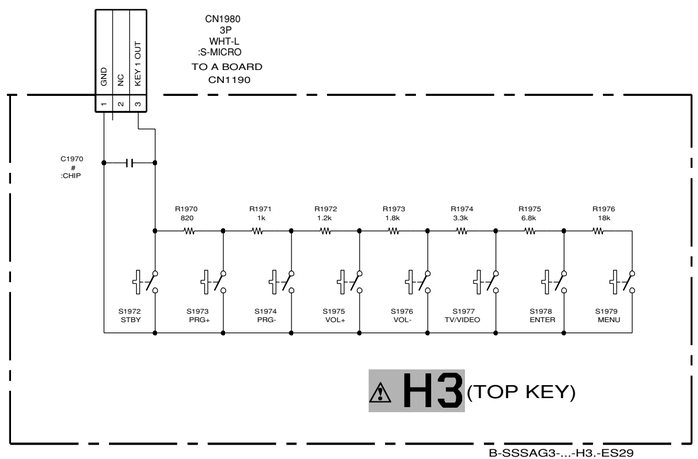
E Board IC4301 CXA2100AQ



Schematic diagrams
H1 H2 H3 boards ➡


TO A BOARD
CN1193
CN1932
6P
WHT
:S-MICRO
HP GND
HP L IN
HP R IN
AU GND
HP MUTE
PULL UP
TO A BOARD
CN1195
&
TO J BOARD
CN8301
CN1934
12P
RED
:S-MICRO
R IN
GND
L IN
GND
Y IN
GND
CV IN
S IN
C IN
GND
KEY 2
GND
D1942 # PROTECTOR
D1940 # PROTECTOR
D1943 # PROTECTOR
D1941 # PROTECTOR
D1930 RD9.1ESL2 PROTECTOR
JW1933 #
D1934 #
D1931 #
D1937 #
D1935 RD9.1ESL2 PROTECTOR
D1932 # PROTECTOR
D1938 # PROTECTOR
D1933 # PROTECTOR
D1939 # PROTECTOR
R1934 100
R1935 100
R1952 2.2k
R1948 JW(5)
R1949 JW(5)
R1950 JW(5)
R1951 JW(5)
R1953 JW(5)
R1932 #
R1947 #
R1954 #
L1932 10μH :EL0606
L1931 10μH :EL0606
C1930 0.01 :PT
C1932 0.01 :PT
C1935 470p
R1933 470k
R1936 470k
C1938 470p
JW1934 #
AUDIO RIGHT
AUDIO LEFT
J1932 TERMINAL,S
J1933 JACK,3P
J1931 JACK
S1931 AUTO PRESET
H2 (AV INPUT,PRESET KEY,PHONE OUT)
B-SSSAG3-...-H2.-ES29

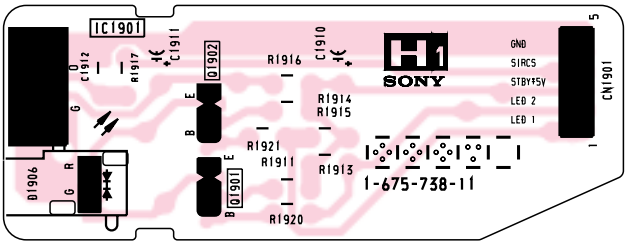

TO A BOARD
CN1190
CN1901
5P
WHT
:S-MICRO
GND
SIRCS
STBY+5V
LED 2
LED 1
R1911 330
R1913 10k
R1914 330
R1915 10k
Q1901 DTC144ESA LED DRIVER
Q1902 DTC144ESA LED DRIVER
R1920 100
R1921 100
R1916 47
C1910 47 16V
C1911 47 16V
R1917 100
D1906 SPB-26MVWF LED(2COLOUR LED)
IC1901 SBX1981-51P REMOTE SENSOR
C1912 470p
H1 (LED,SIRCS RECEIVER)
B-SSSAG3-...-H1.-ES29


CN1980
3P
WHT-L
:S-MICRO
TO A BOARD
CN1190
GND
NC
KEY1 OUT
C1970 # :CHIP
R1970 820
R1971 1k
R1972 1.2k
R1973 1.8k
R1974 3.3k
R1975 6.8k
R1976 18k
S1972 STBY
S1973 PRG+
S1974 PRG-
S1975 VOL+
S1976 VOL-
S1977 TV/VIDEO
S1978 ENTER
S1979 MENU
H3 (TOP KEY)
B-SSSAG3-...-H3.-ES29

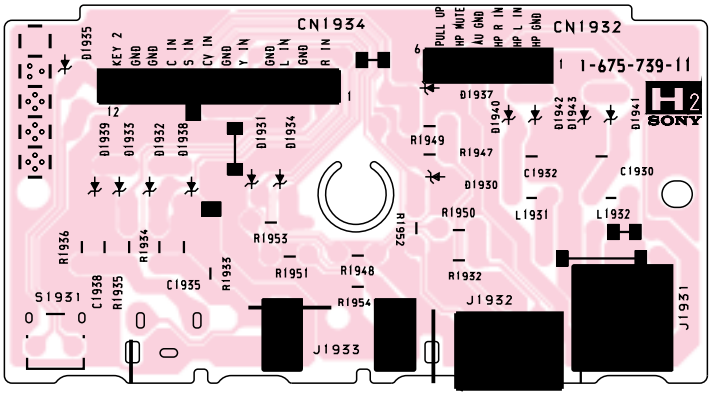
PRINTED WIRING BOARDS

H1 [LED, SIRCS RECEIVER] **H2** [AV INPUT, PRESET KEY, PHONE OUT] **H3** [TOP KEY]

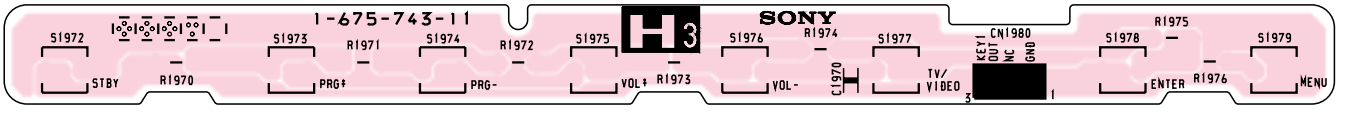
– H1 Board –



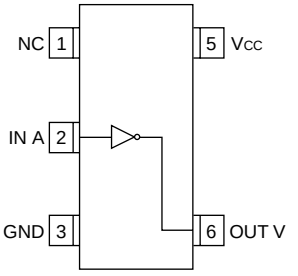
– H2 Board –



– H3 Board –

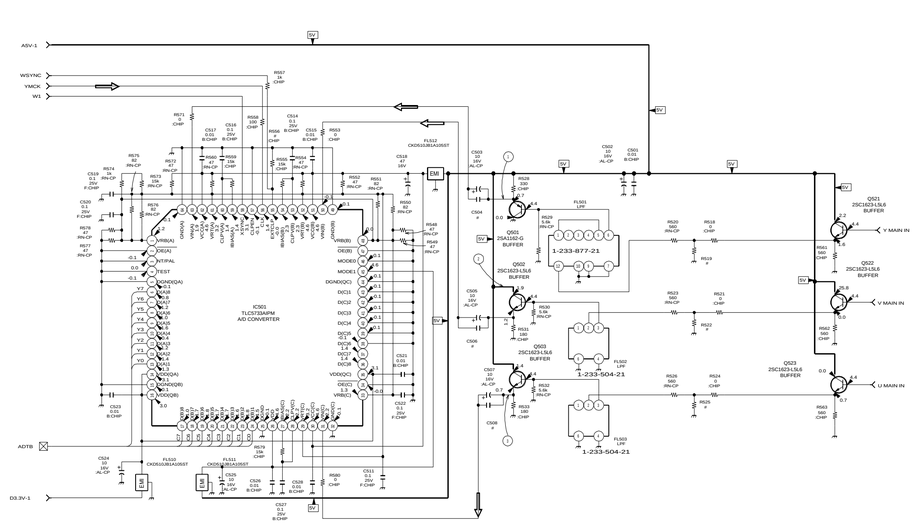


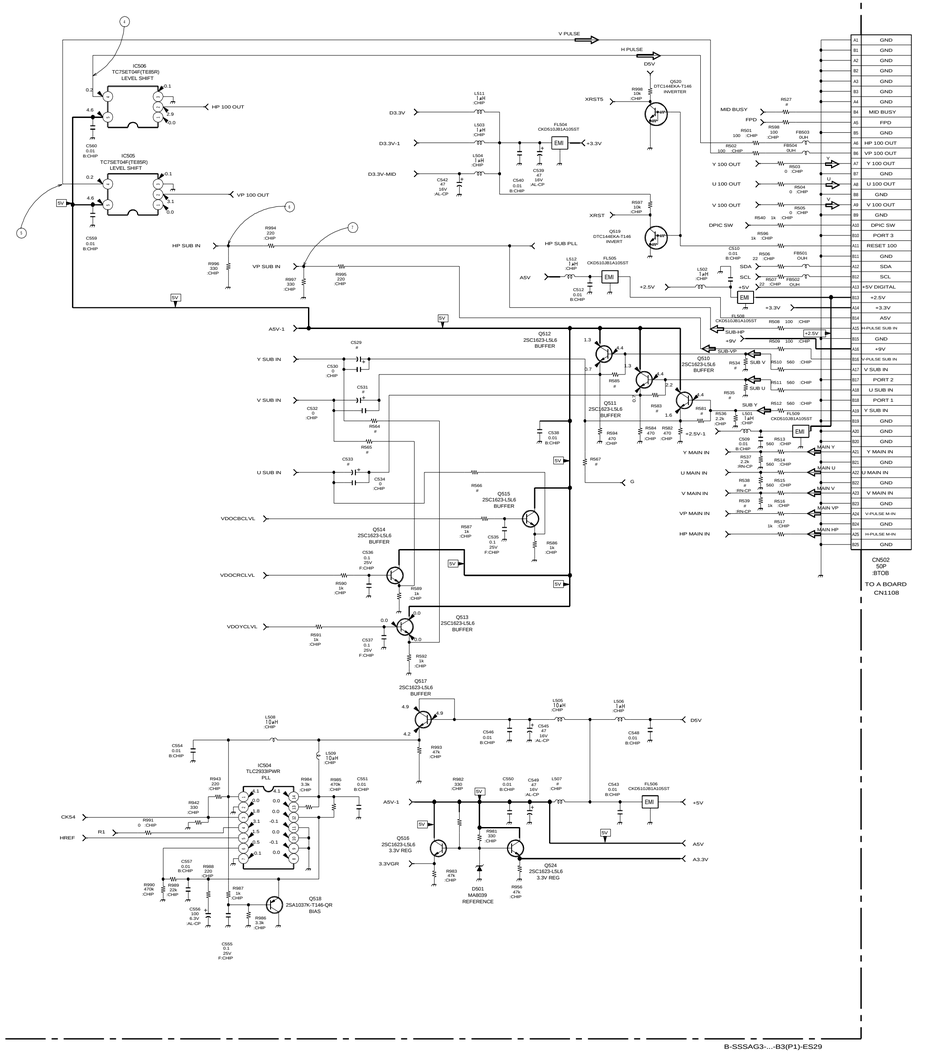
B3 BOARD IC309, IC505 and IC506 TC7SET04F (TE85R)

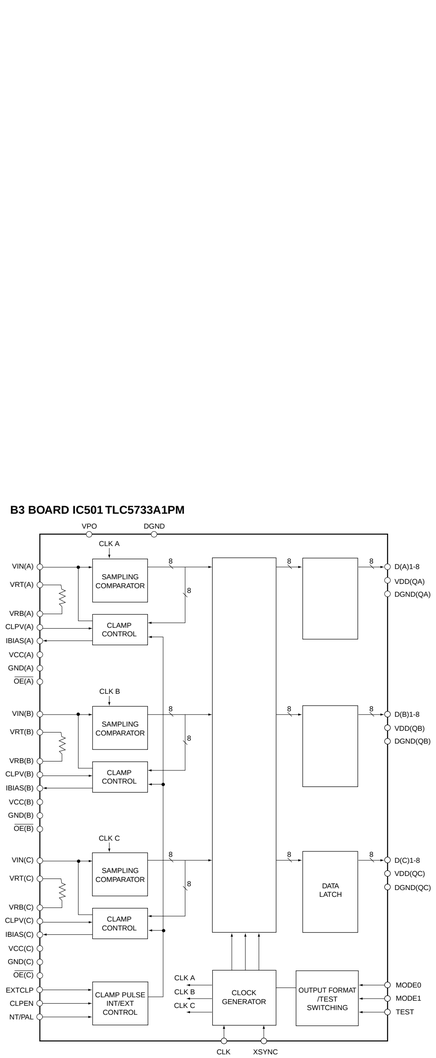


B3 BOARD WAVEFORMS

① 1.7Vp-p (H)	② 1.0Vp-p (H)	③ 1.1Vp-p (H)	④ 4.7Vp-p (V)	⑤ 4.9Vp-p (V)
⑥ 2.3Vp-p (V)	⑦ 2.2Vp-p (V)	⑧ 2.8Vp-p (V)	⑨ 3.1Vp-p (V)	⑩ 0.6Vp-p (H)
⑪ 0.6Vp-p (H)	⑫ 1.0Vp-p (H)	⑬ 3.5Vp-p (V)	⑭ 0.9Vp-p (H)	⑮ 0.6Vp-p (H)
⑯ 0.5Vp-p (H)	⑰ 3.7Vp-p (V)	⑱ 0.6Vp-p	⑲ 0.1Vp-p (H)	⑳ 0.6Vp-p



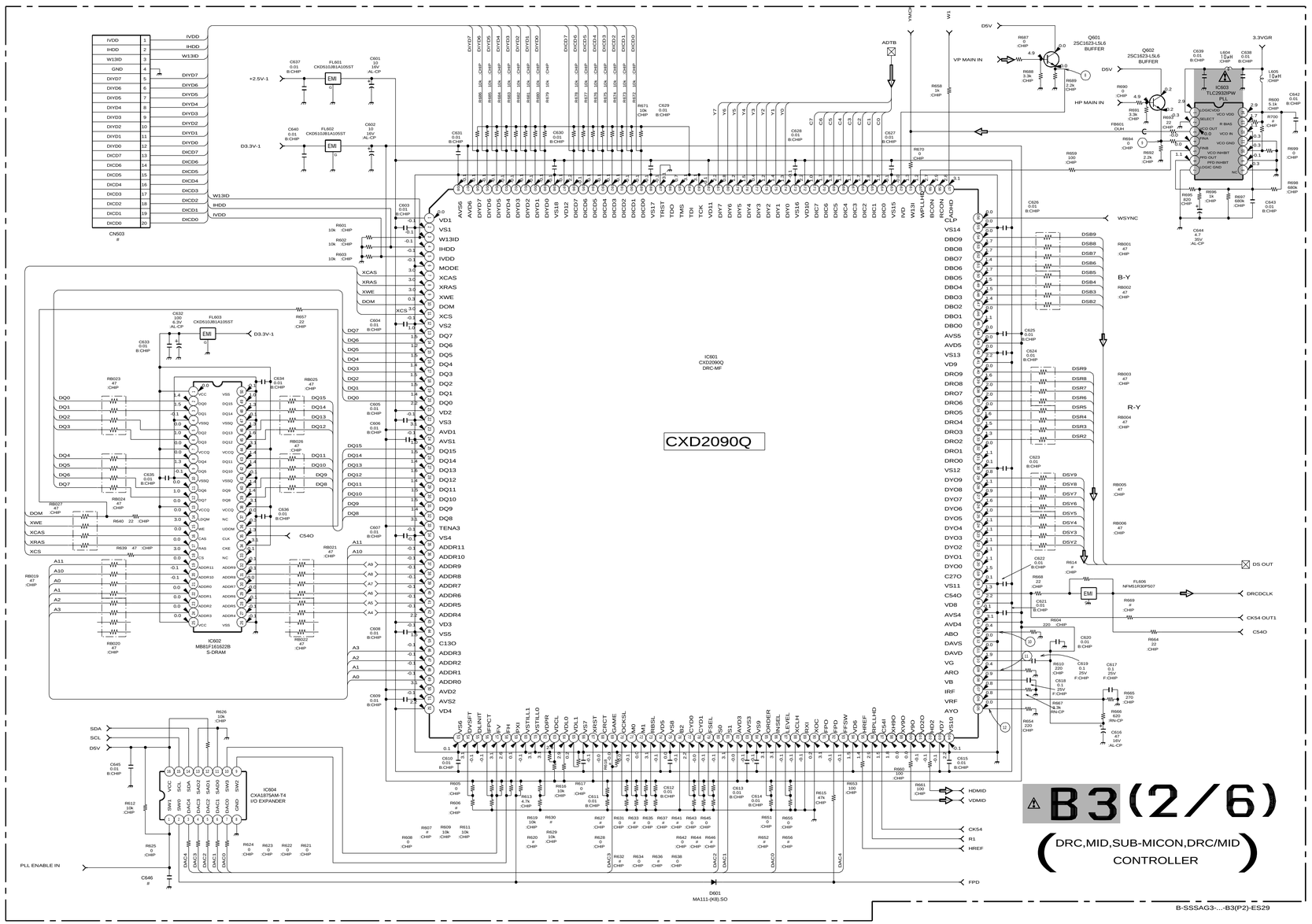




⚠ B3 (1/6)

(DRC,MID,SUB-MICON DRC/MID CONTROLLER)

B-SSSAG3-...-B3(P1)-ES29



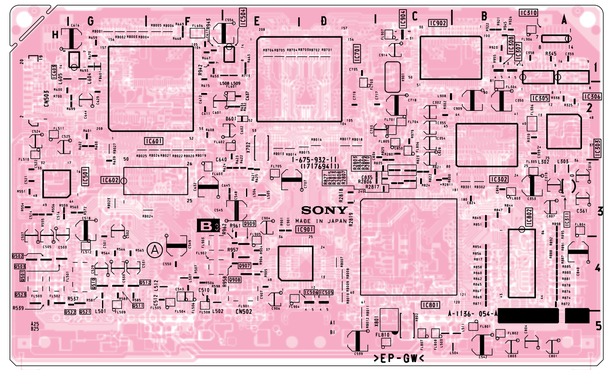
B3 (2/6)

(DRC,MID,SUB-MICON,DRC/MID CONTROLLER)

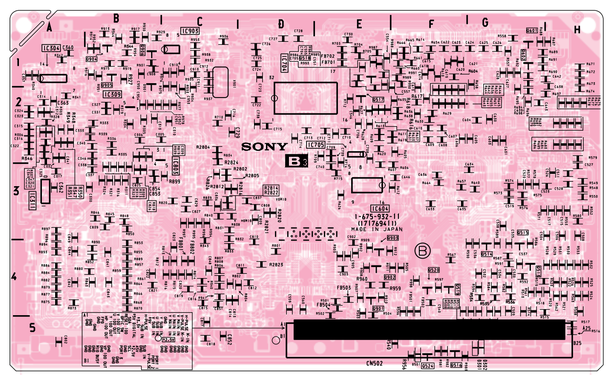
PRINTED WIRING BOARDS

B3 [DRC, MID, SUB MICON, DRC/MID CONTROLLER]

– B3 Board (Component Side) –



– B3 Board (Conductor Side) –



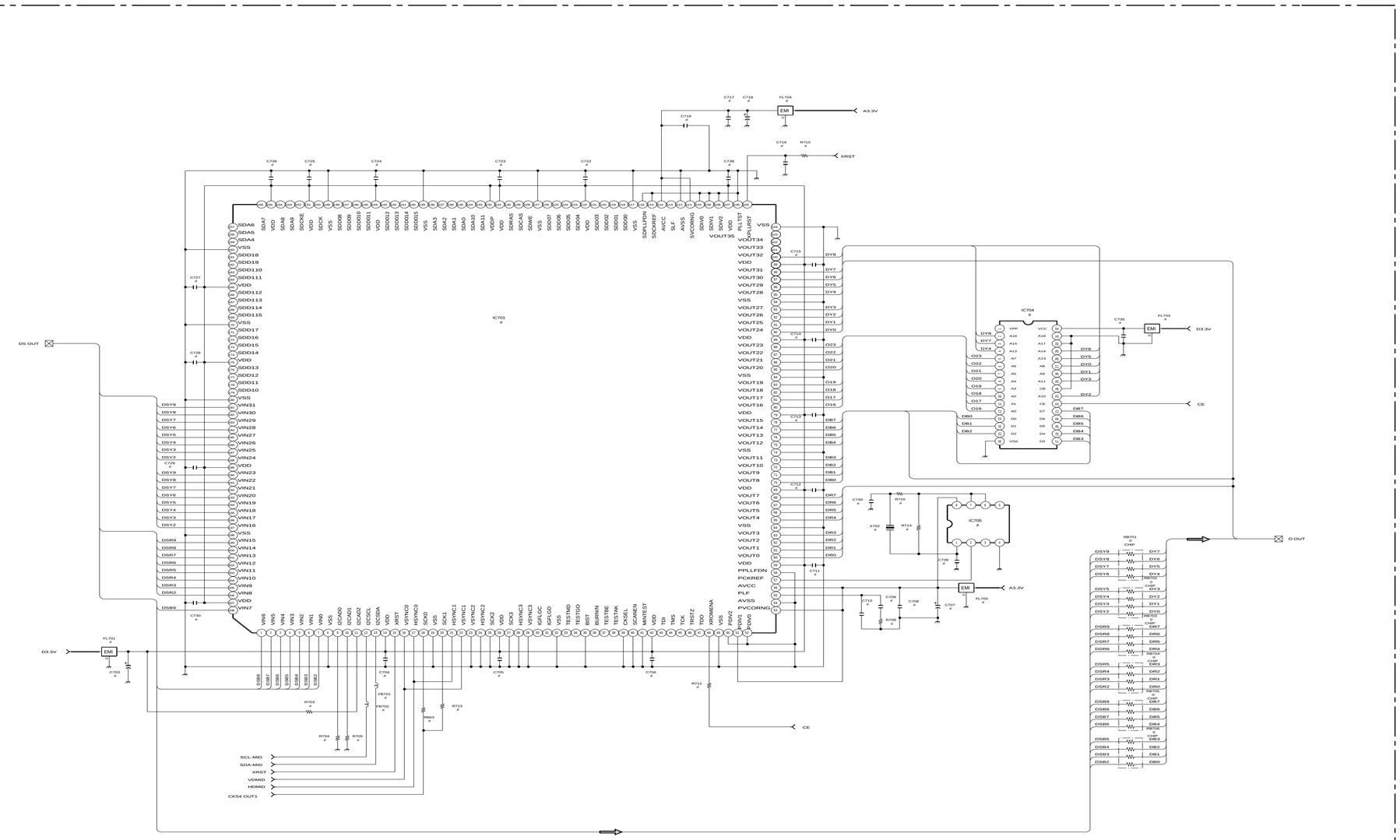
- :Pattern from the side which enables seeing.
- :Pattern from the rear side.

B3 BOARD (Conductor Side)

IC		Q519	D-6
		Q520	D-6
IC304	A-1	Q524	E-6
IC309	B-2	Q601	A-7
IC311	C-1	Q602	A-7
IC604	C-5	Q901	D-5
IC704	A-4	Q902	D-5
IC705	B-4	Q903	C-6
IC803	C-3	Q904	A-2
IC903	A-3	Q905	A-2
		Q906	A-2
TRANSISTOR		DIODE	
Q513	D-7	D301	A-7
Q514	D-7	D302	B-5
Q515	C-7	D901	B-11
Q516	E-6		
Q517	B-5		
Q518	A-4		

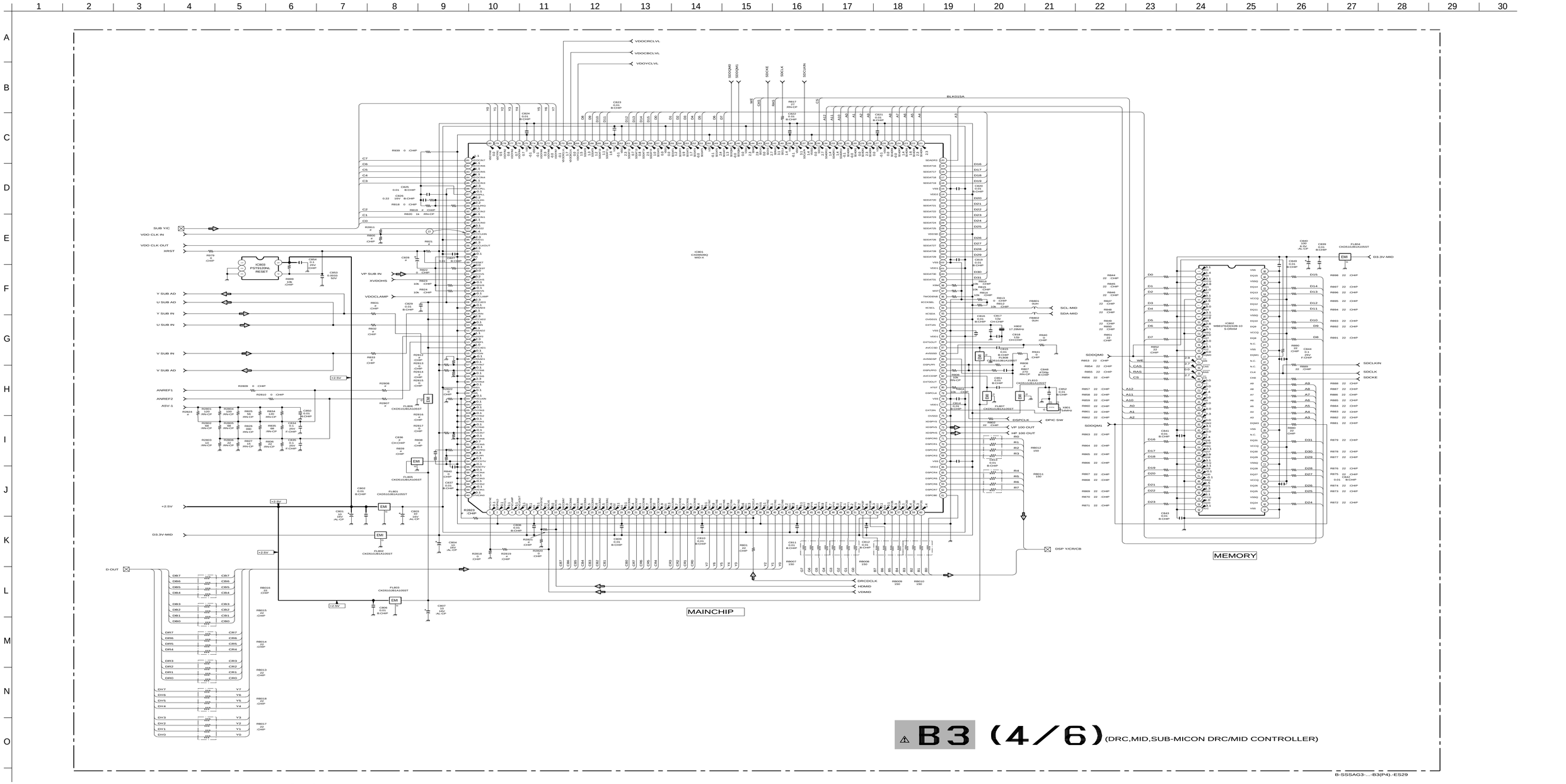
B3 BOARD (Component Side)

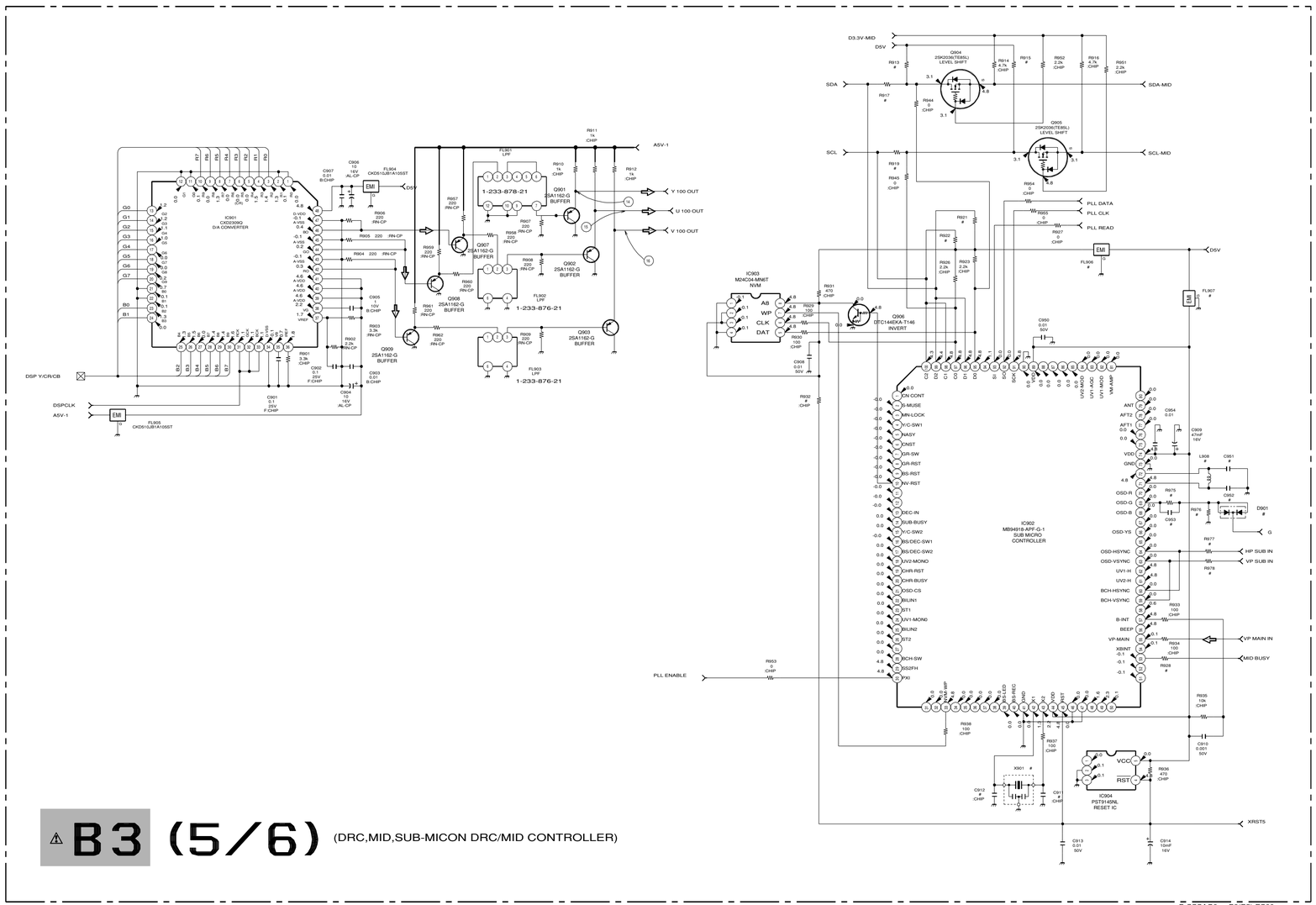
IC		TRANSISTOR	
IC302	C-7	Q501	D-6
IC303	B-8	Q502	E-7
IC305	B-7	Q503	F-6
IC306	B-8	Q510	D-2
IC307	A-7	Q511	F-1
IC308	A-7	Q512	D-2
IC310	A-7	Q521	E-2
IC311	C-8	Q522	E-1
IC501	C-1	Q523	D-1
IC504	A-4	Q907	D-4
IC505	D-5	Q908	D-3
IC506	D-4	Q909	C-4
IC601	I-8	DIODE	
IC602	H-6		
IC603	D-8	D601	I-8
IC701	A-5		
IC801	E-6		
IC802	C-7		
IC901	I-13		
IC902	A-6		
IC904	A-6		



B-SSSAG3-...-B3(P3)-ES29

(10) Schematic Diagram of B3 (4/6) Board



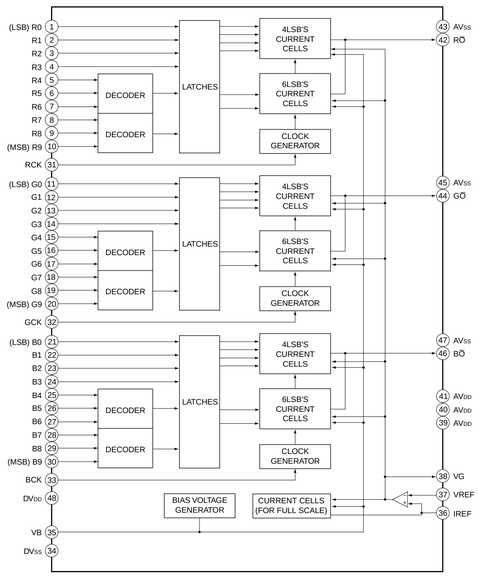


⚠B3 (5/6)

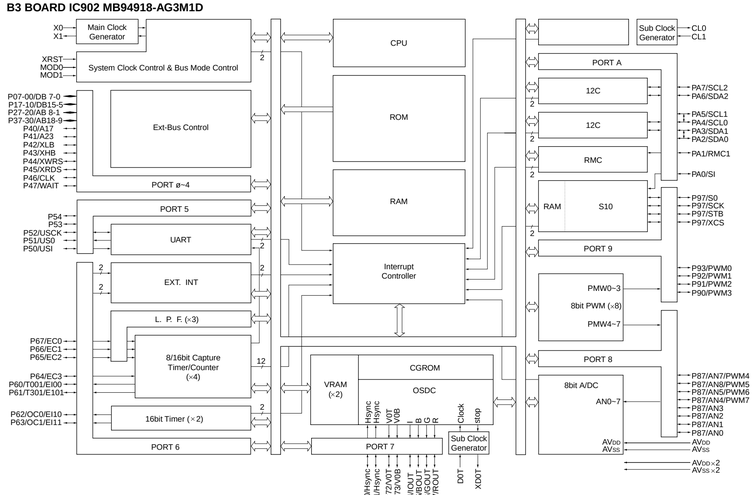
(DRC,MID,SUB-MICON DRC/MID CONTROLLER)

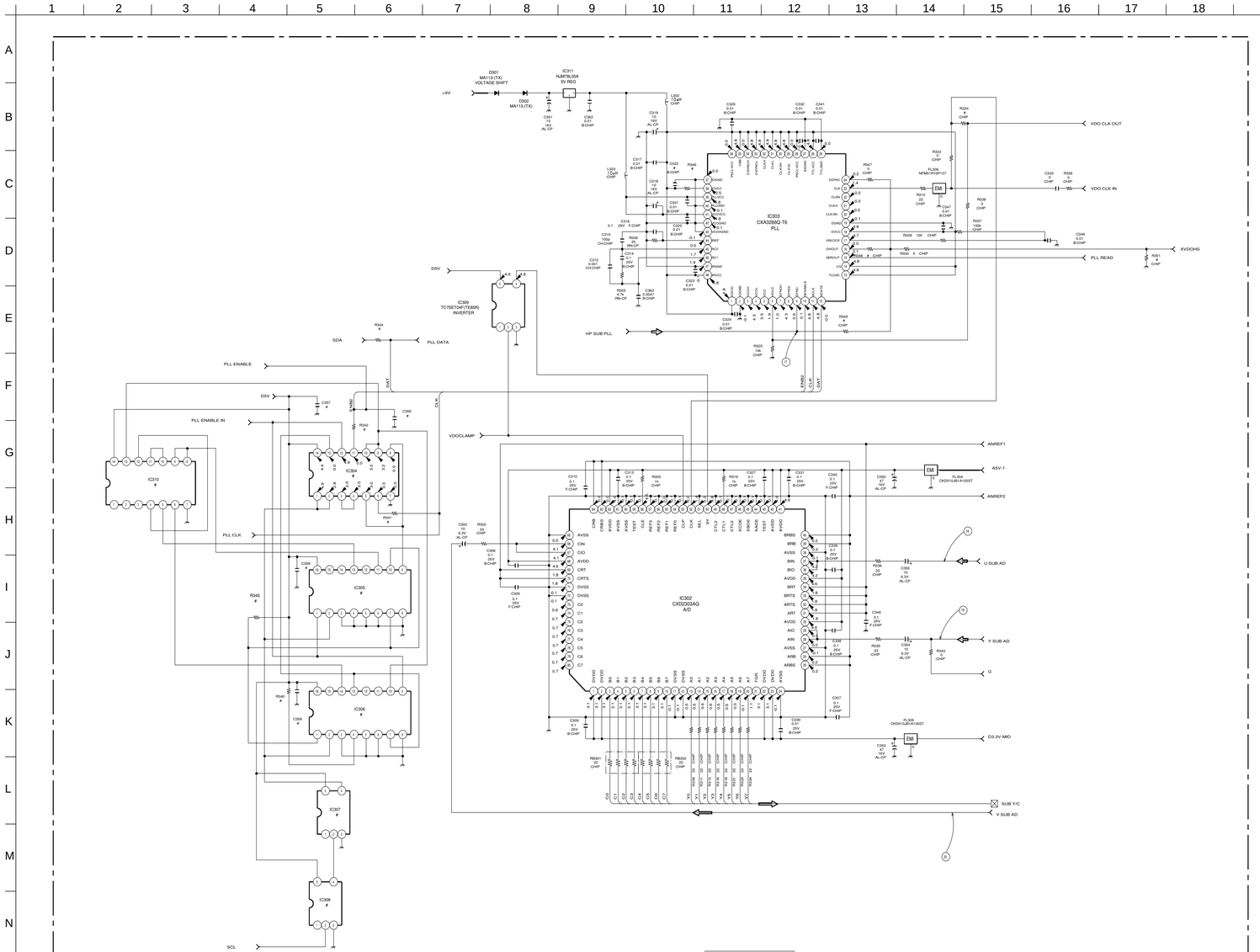
B-SSSAG3-...-B3(P5)-ES29

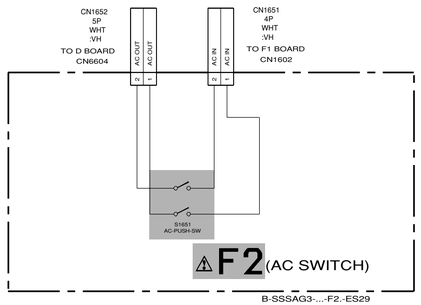
B3 BOARD IC901 CXD2309Q

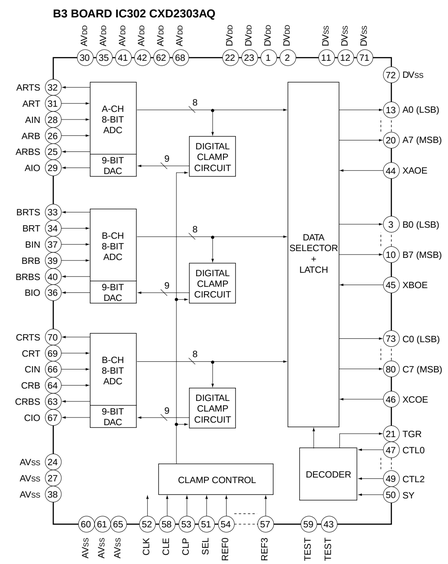


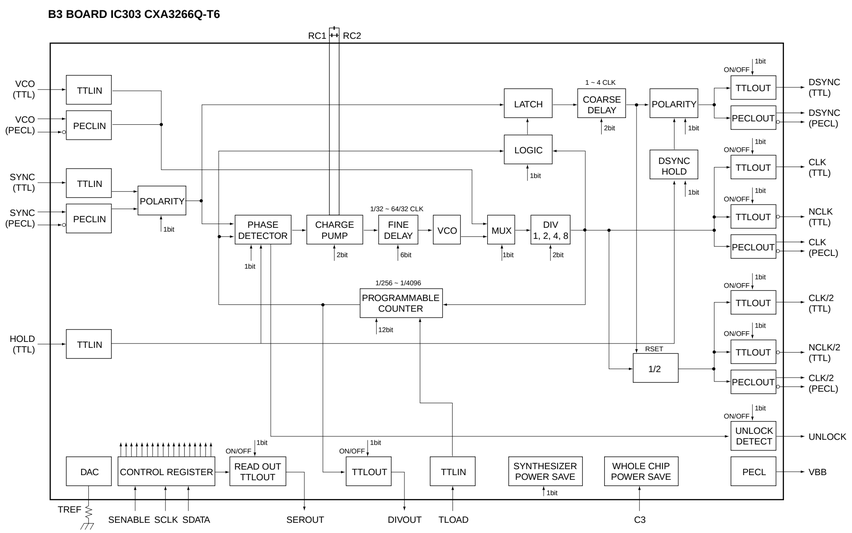
B3 BOARD IC902 MB94918-AG3M1D



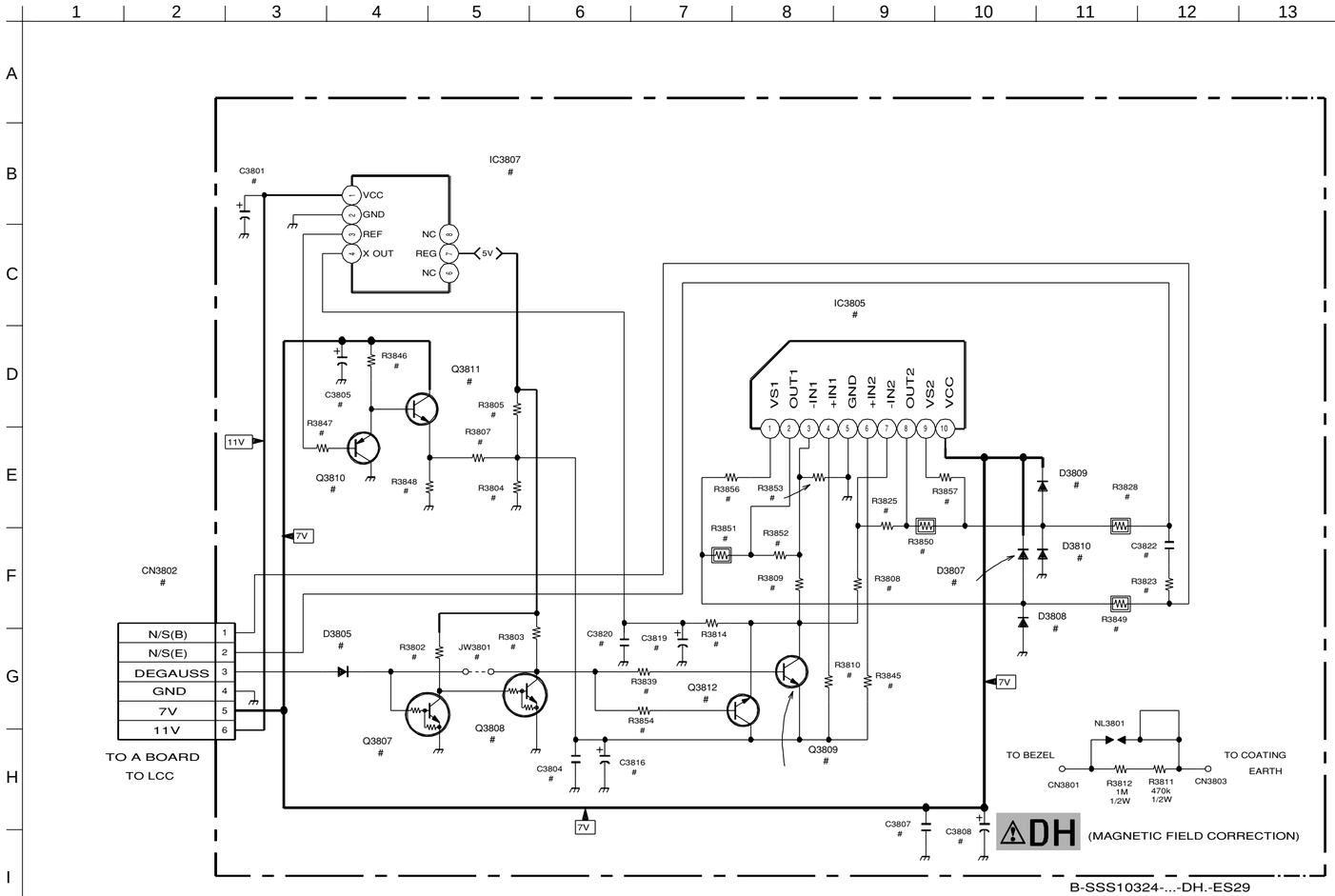

IC303
CXA3266Q-T6
PLL
IC302
CXD2303AQ
A/D
IC309
TC7SET04FT(EBR/R)
INVERTER
IC310
IC304
IC305
IC306
IC307
IC308
VDO CLK OUT
VDO CLK IN
XVDCHS
PLL READ
HP SUB PLL
PLL DATA
PLL ENABLE
PLL ENABLE IN
PLL CLK
VDOCLAMP
ANREF1
ANREF2
ASV-1
U SUB AD
V SUB AD
G
D3.3V-MID
SUB Y/C
V SUB AD
SCL
SDA
DSV
+5V
B3 (6/6) (DRC,MID,SUB-MICON DRC/MID CONTROLLER)
B-SSSAG3-...-B3(P6)-ES29


CN1652
5P
WHT
VH
TO D BOARD
CN6604
AC OUT
AC OUT
AC IN
AC IN
CN1651
4P
WHT
VH
TO F1 BOARD
CN1602
S1651
AC-PUSH-SW
F2 (AC SWITCH)
B-SSSAG3-...-F2.-ES29


B3 BOARD IC302 CXD2303AQ
AVDD
DVDD
DVSS
ARTS
ART
AIN
ARB
ARBS
AIO
BRTS
BRT
BIN
BRB
BRBS
BIO
CRTS
CRT
CIN
CRB
CRBS
CIO
A-CH 8-BIT ADC
B-CH 8-BIT ADC
9-BIT DAC
DIGITAL CLAMP CIRCUIT
DATA SELECTOR + LATCH
CLAMP CONTROL
DECODER
A0 (LSB)
A7 (MSB)
XAOE
B0 (LSB)
B7 (MSB)
XBOE
C0 (LSB)
C7 (MSB)
XCOE
TGR
CTL0
CTL2
SY
CLK
CLE
CLP
SEL
REF0
REF3
TEST


B3 BOARD IC303 CXA3266Q-T6
RC1
RC2
VCO (TTL)
VCO (PECL)
SYNC (TTL)
SYNC (PECL)
HOLD (TTL)
TTLIN
PECLIN
POLARITY
PHASE DETECTOR
CHARGE PUMP
FINE DELAY
VCO
MUX
DIV 1, 2, 4, 8
LATCH
LOGIC
COARSE DELAY
1 ~ 4 CLK
POLARITY
DSYNC HOLD
PROGRAMMABLE COUNTER
1/256 ~ 1/4096
1/2
RSET
TTLOUT
PECLOUT
DSYNC (TTL)
DSYNC (PECL)
CLK (TTL)
NCLK (TTL)
CLK (PECL)
CLK/2 (TTL)
NCLK/2 (TTL)
CLK/2 (PECL)
UNLOCK DETECT
UNLOCK
VBB
DAC
TREF
CONTROL REGISTER
READ OUT TTLOUT
TTLIN
SYNTHESIZER POWER SAVE
WHOLE CHIP POWER SAVE
PECL
SENABLE
SCLK
SDATA
SEROUT
DIVOUT
TLOAD
C3

(13) Schematic Diagram of DH Board

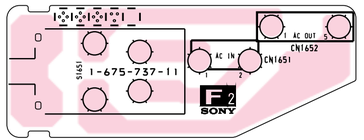


PRINTED WIRING BOARDS

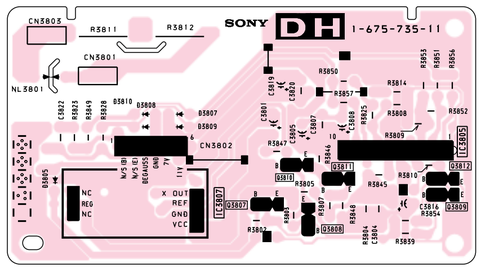
F2 [AC SWITCH]

DH [MAGNETIC FIELD CORRECTION]

– F2 Board –



– DH Board –

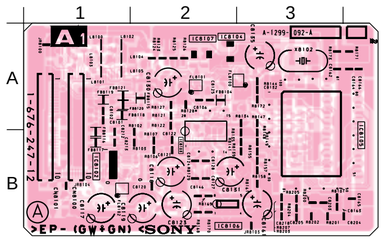


Schematic diagram
DH board

PRINTED WIRING BOARDS

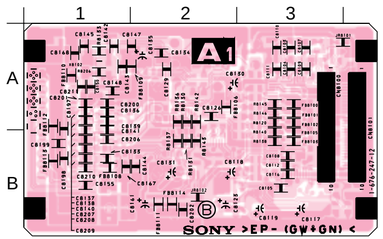
A1 [AUDIO DSP]

– A1 Board (Component Side) –



- :Pattern from the side which enables seeing.
- :Pattern from the rear side.

– A1 Board (Conductor Side) –

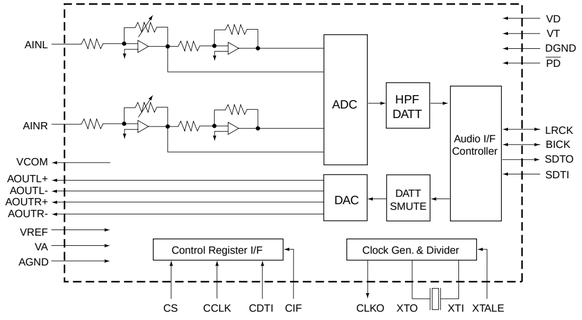


A1 BOARD (Component Side)

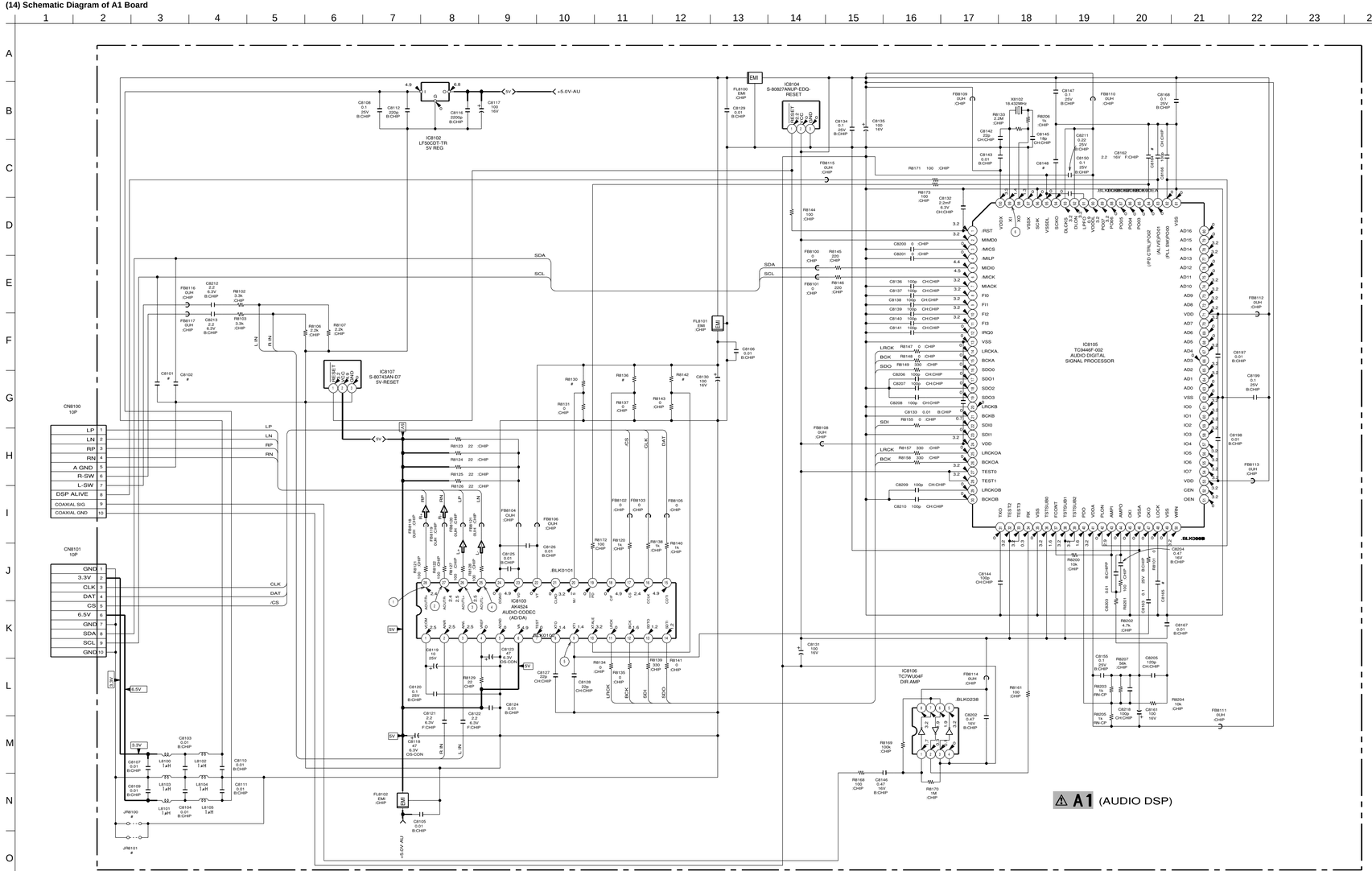
IC	
IC8102	B-1
IC8104	A-2
IC8105	B-4
IC8106	B-3
IC8108	B-1

KV-ES29M61/ES29N90
RM916 RM-958

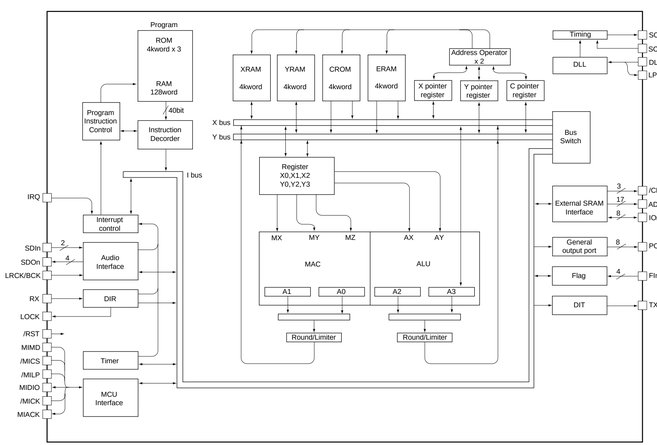
A1 Board IC8103 AK4524

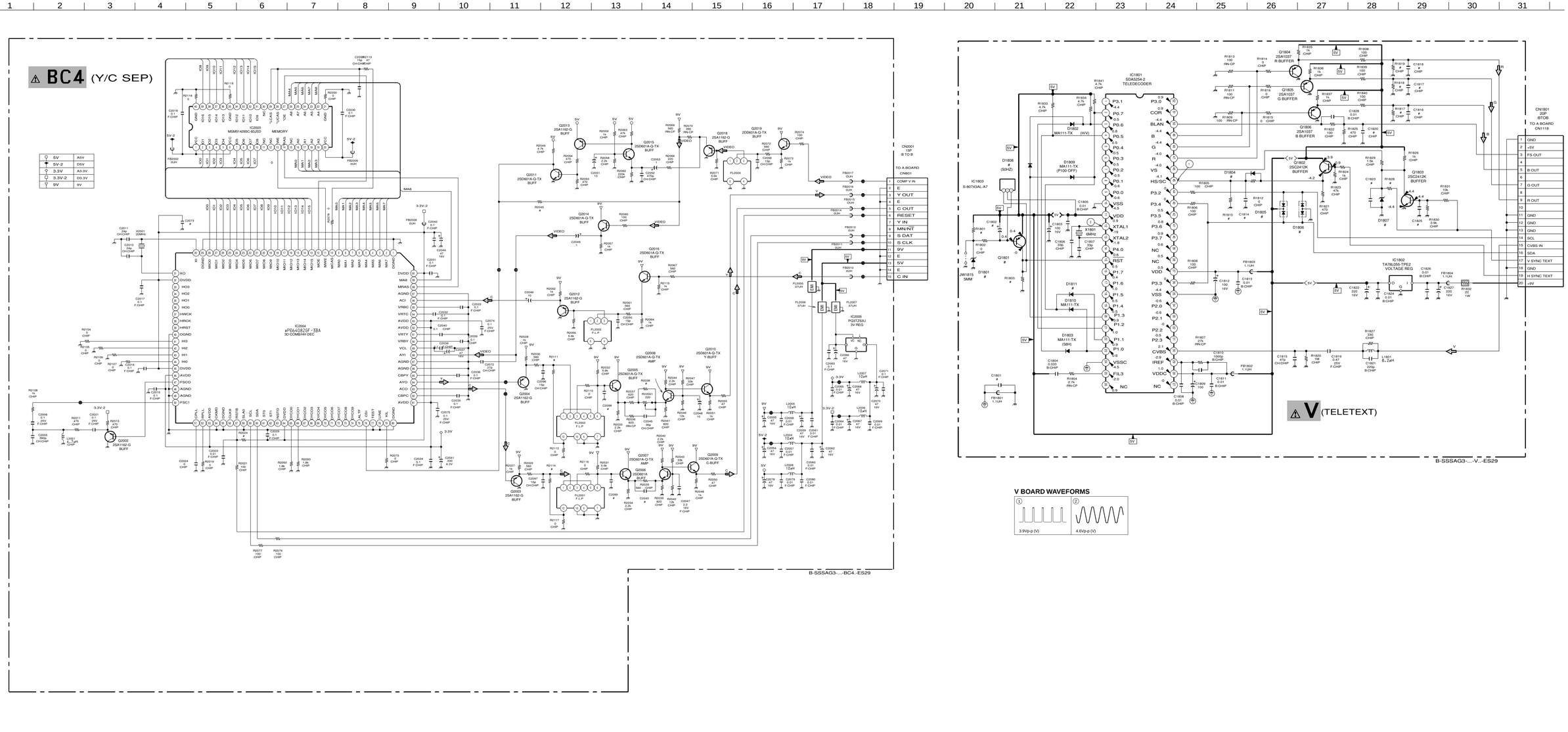


(14) Schematic Diagram of A1 Board



A1 BOARD IC8105 TC9446F-002 (TE85R)



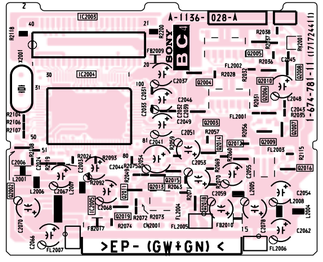

BC4 (Y/C SEP)
IC2003 MSM514265C-60JSD MEMORY
IC2004 μPD64082GF-5BA 3D COMB/HH DEC
IC2001 TA8759SF-TPE2 SDTV DECODER
IC2002 TA8759SF-TPE2 SDTV DECODER
IC1801 SDA5254-2 TELEDECODER
IC1802 TA78L05L-TPE2 VOLTAGE REG
IC2005 PQ3TZ33U 3V REG
IC1803 S-80743AL-A7
CN2001 15P 8 TO B
TO A BOARD CN601
CN1801 20P 8TO8
TO A BOARD CN1118
B-SSSAG3-...-BC4.-ES29
B-SSSAG3-...-V...-ES29
V (TELETEXT)
V BOARD WAVEFORMS
3.9Vp-p (V)
4.6Vp-p (V)

KV-ES29M61/ES29N90
RM916 RM-958
KV-ES29M61/ES29N90
RM916 RM-958

PRINTED WIRING BOARDS

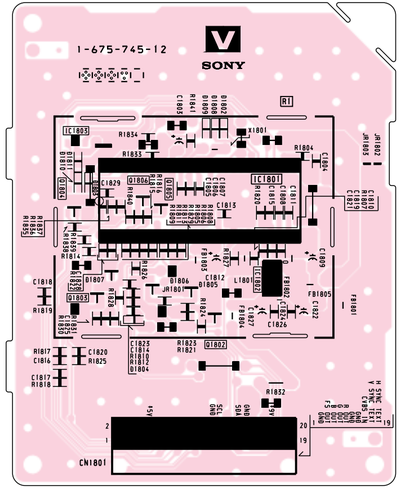
BC4 [Y/C SEP]

– BC4 Board –

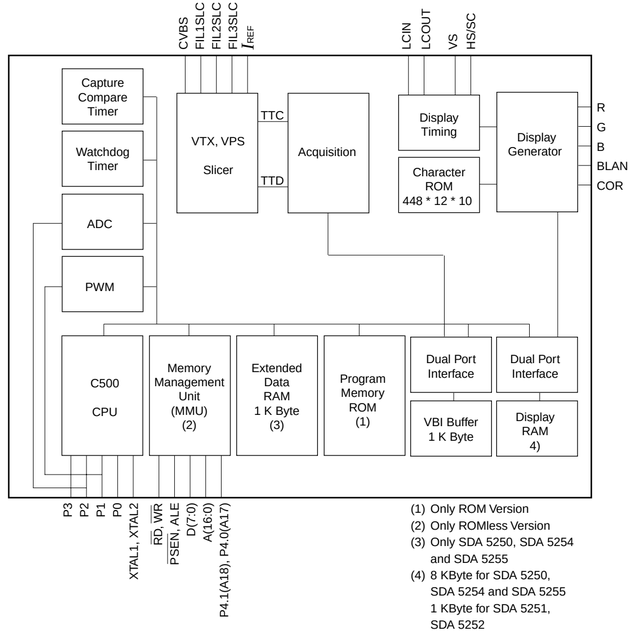


V [TELE TEXT] (KV-ES29M61 ONLY)

– V Board –

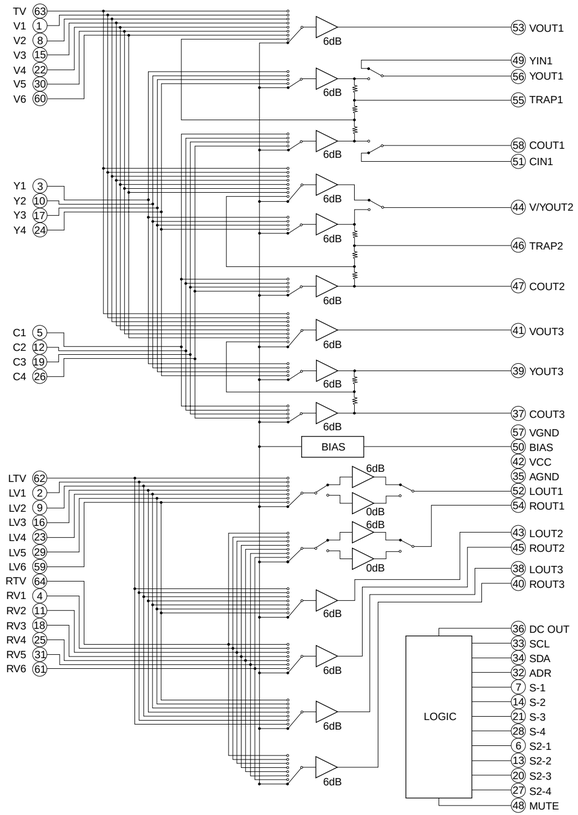


V Board IC1801 SDA5254-2B006



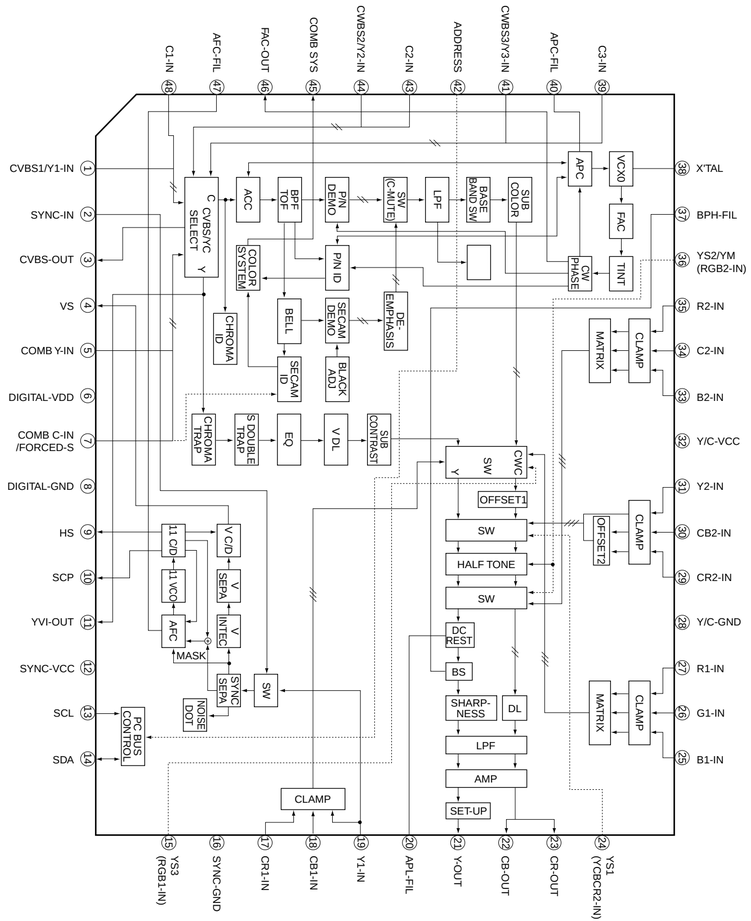
(1) Only ROM Version
(2) Only ROMless Version
(3) Only SDA 5250, SDA 5254 and SDA 5255
(4) 8 KByte for SDA 5250, SDA 5254 and SDA 5255
1 KByte for SDA 5251, SDA 5252

J Board IC8302 CXA2069Q



KV-ES29M61/ES29N90
RM916 RM-958

J Board IC8306 CXA2123AQ-T6



KV-ES29M61/ES29N90
RM916 RM-958

J BOARD WAVEFORMS

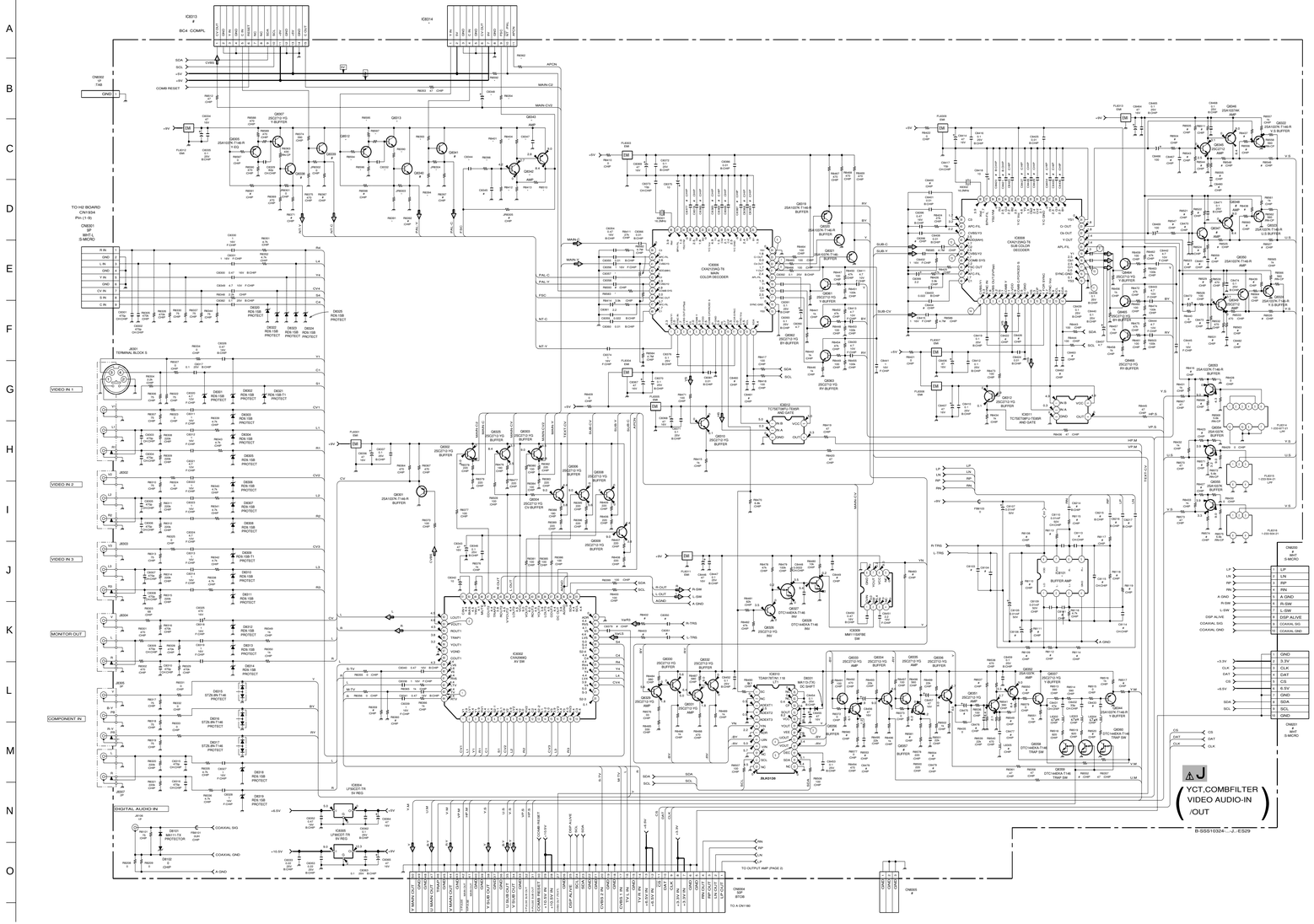
1 1.3Vp-p (H)	2 2.6Vp-p (H)	3 1.6Vp-p (H)	4 1.7Vp-p (H)	5 1.4Vp-p
6 1.4Vp-p (H)	7 1.0Vp-p (H)	8 1.4Vp-p (H)	9 0.3Vp-p (H)	10 0.5Vp-p (H)
11 0.5Vp-p (H)	12 0.5Vp-p (H)	13 0.4Vp-p (H)	14 2.1Vp-p (H)	

J BOARD ✻ MARK LIST

	KV-ES29M61	KV-ES29N90
C8332	82 50V: CHIP	#
C8344	0.01 50V: CHIP	#
C8347	0.1 25V: CHIP	#
C8348	100 16V	#
C8357	0.01 50V: CHIP	#
C8358	1 16V: CHIP	#
IC8101	IC UPC4558G2	#
IC8314	HYBICSBX3005-11	#
JR8303	SHORT 0	#
JR8304	SHORT 0	#
Q8313	2SC2712-YG	#
Q8342	2SC2712-YG	#
Q8343	2SA1037AK-T146-R	#
Q8512	2SA1037AK-T146-R	#
R8354	47: CHIP	#
R8362	47: CHIP	#
R8390	430: RN: CP	#
R8391	470: CHIP	#
R8393	330: CHIP	#
R8394	470: CHIP	#
R8398	100: CHIP	#
R8401	22: CHIP	#
R8404	220: CHIP	#
R8412	10: CHIP	#
R8413	470: CHIP	#
R8510	470: CHIP	#
R8583	4.7; CHIP	#
R8592	SHORT 0	#
R8594	SHORT 0	#
R8595	470: CHIP	#
R8596	470: CHIP	#
R8597	470: CHIP	#

Note) The parts indicated as "#" in this circuit diagram are not listed here, as they are not used for these models.

(16) Schematic Diagram of J Board



6-5. SEMICONDUCTORS

DIODE

D1NS4
ERA38-06
ERA85-009
RD10ESB2
RD12ES-B1
RD13ES-B2
RD15ES-B1
RD18ESB
RD2.2ES-B2
RD2.7ESB2
RD22ES-B1
RD3.6ES-B1
RD3.9ES-B2
RD30ESB2
RD4.7ESB2
RD5.6ES-B1
RD6.8ES-B1
RD7.5ESB2
1SS119-25

DTZ9.1
MA111-(K8).S0
MA113-(TX)
RD5.6SB3
RD9.1S-B

D4SB60L

RD9.1ES-L2

D1NL20U-TR

DAN202K

EL1Z
GP08D
HS583TD
RGP02-20EL-6394

MA8039

ON3171-R

DTZ-TT11-2.4B
S3L20UF4

U05G

LED

SPB-26MVWF

TRANSISTOR

DTA144EKA-T146
DTC114EK
2SA1037AK-T146-R
2SA1162-G
2SC1623-L5L6
2SC2712-YG
2SD601A-Q-TX

DTC144ESA
TR DTC144EKA
2SA1175-HFE
2SC2785-HFE

2SA2005

2SB733-34
2SD774-34

2SC3840(3)

2SK2036(TE85L)
2SK2251-01-F19

IRF720-LF49

IC

AK4524
LF50CDT-TR
MM1115XFBE
NJM4560M
TC7WU04F
TDA7315D013TR
TDA7481
***u*PC4558G2**

Dual In-line Package
Pin 6~98

LA6510

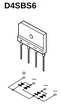
MSM514265C-60TS

STV9379

TA78L05S

TA7805S

D4SBL20U
D4SBS6



MA3062M-TX
MA3091
STZ6.8N-T146

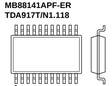
D5S4M

2SC2500-B

CA0005AD
CA0007AD
NJM3404AD
TOP209P
UPC393C
UPC358C

Dual In-line Package
Pin 6~98

MB88141APF-ER
TDA9177IN1.118



Small Outline L-leaded
Package
Pin 8~98

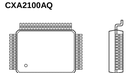
LA6500-FA

CXA1211M
CXA1875AM-T4

D10SC4M
D10SBS4F

CXD2069Q

CXA2100AQ



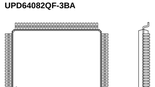
DTA144ESA
TR DTC144EKA

UPC1093J-1-T

PQ3TZ53U

LM393N

UPD64082QF-3BA

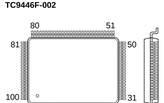


PQ1CG2032FZ

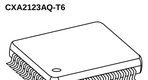
PQ5EV3

MCR5152

TC9446F-002



CXA2123AQ-T6



P6KE200AG23
UF4005PKG23

2SC5480-01

2SC5511

SBX1981-51P

DM-58

TC7SET08FU(TE85L)

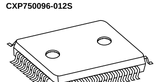
TDA6111Q/N4

BA12T

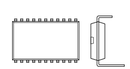
BA09T

BA05T

CXP750096-012S



SDA5254-2B006



SECTION 7
EXPLODED VIEWS

NOTE:

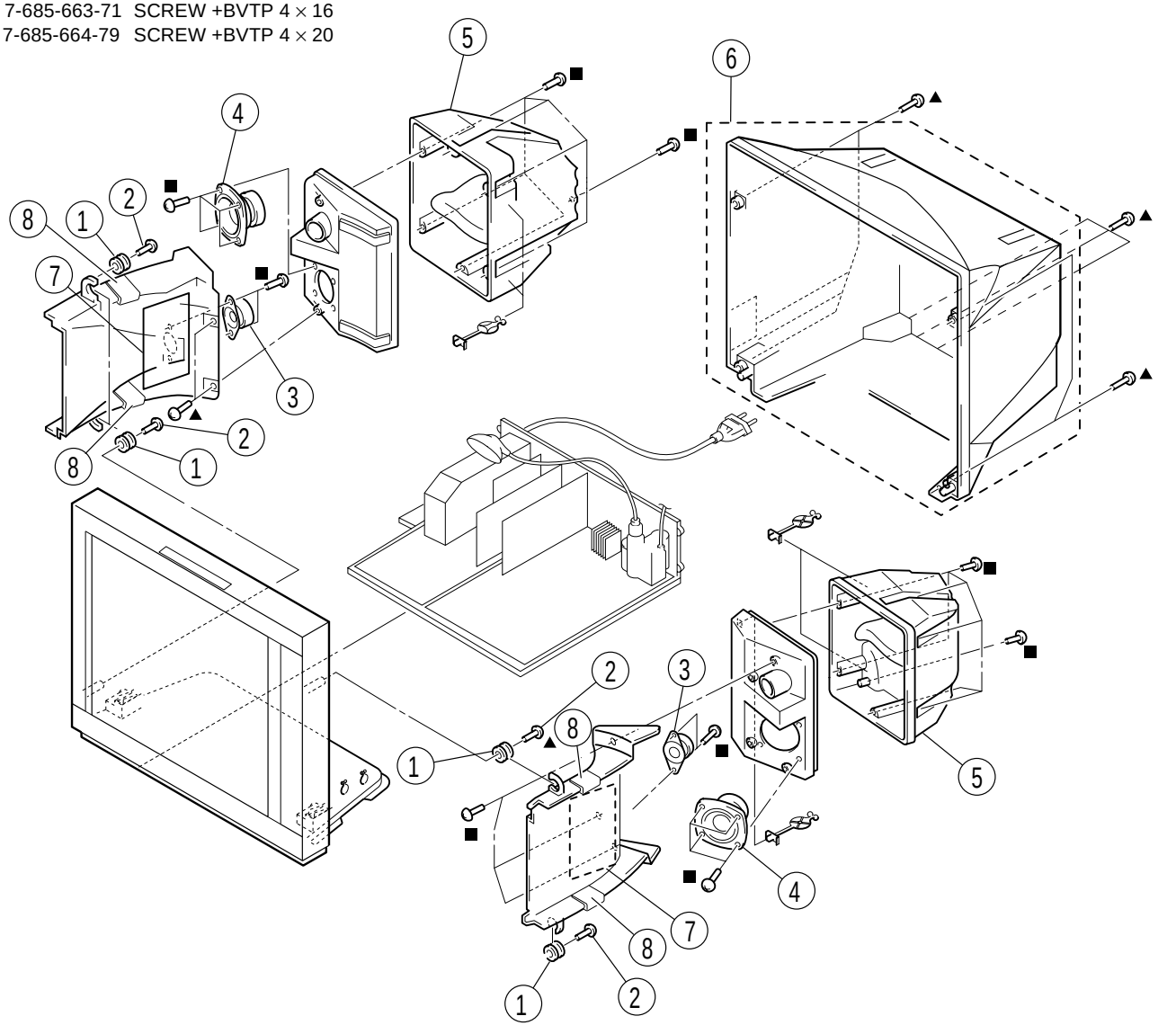
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

CAUTION: The aluminium frame must be connected to the ground with the ground cable from DH board. Failure to do so, may cause the user to suffer electric shock.

7-1. SPEAKER BRACKET

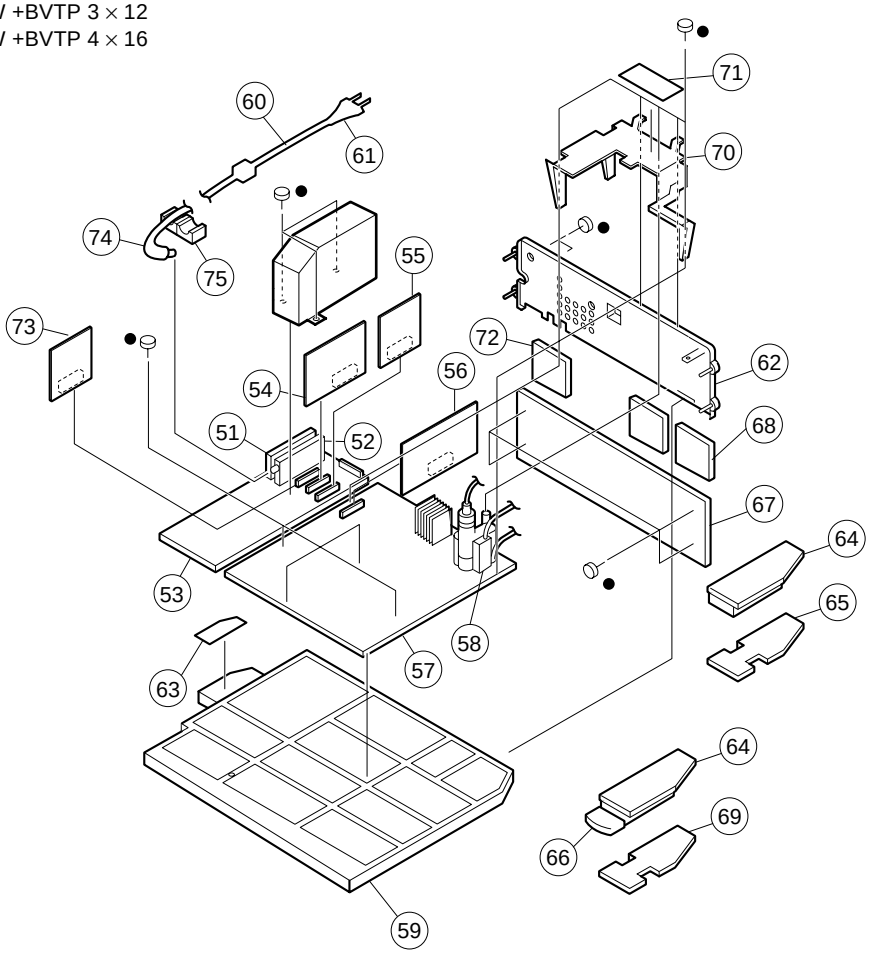
■: 7-685-663-71 SCREW +BVTP 4 × 16
▲: 7-685-664-79 SCREW +BVTP 4 × 20



REF. NO.		PART NO.	DESCRIPTION	REMARK
1		4-374-745-11	CUSHION (A)	
2		4-064-929-02	SCREW, TP+TWH 4X25	
3		1-529-532-11	SPEAKER (5CM)	
4		1-505-473-11	SPEAKER (12CM)	
5	*	4-071-302-01	DUCT, SPEAKER	
6		X-4036-878-2	COVER ASSY, REAR	
7	*	4-073-084-01	DUCT, CUSHION (KV-ES29N90)	
	*	4-073-084-31	DUCT, CUSHION (KV-ES29M61)	
8	*	4-074-512-01	CUSHION (S), DGC (KV-ES29N90)	
	*	4-074-512-31	CUSHION (S), DGC (KV-ES29M61)	

7-2. CHASSIS

●: 7-685-648-71 SCREW +BVTP 3 × 12
■: 7-685-663-71 SCREW +BVTP 4 × 16

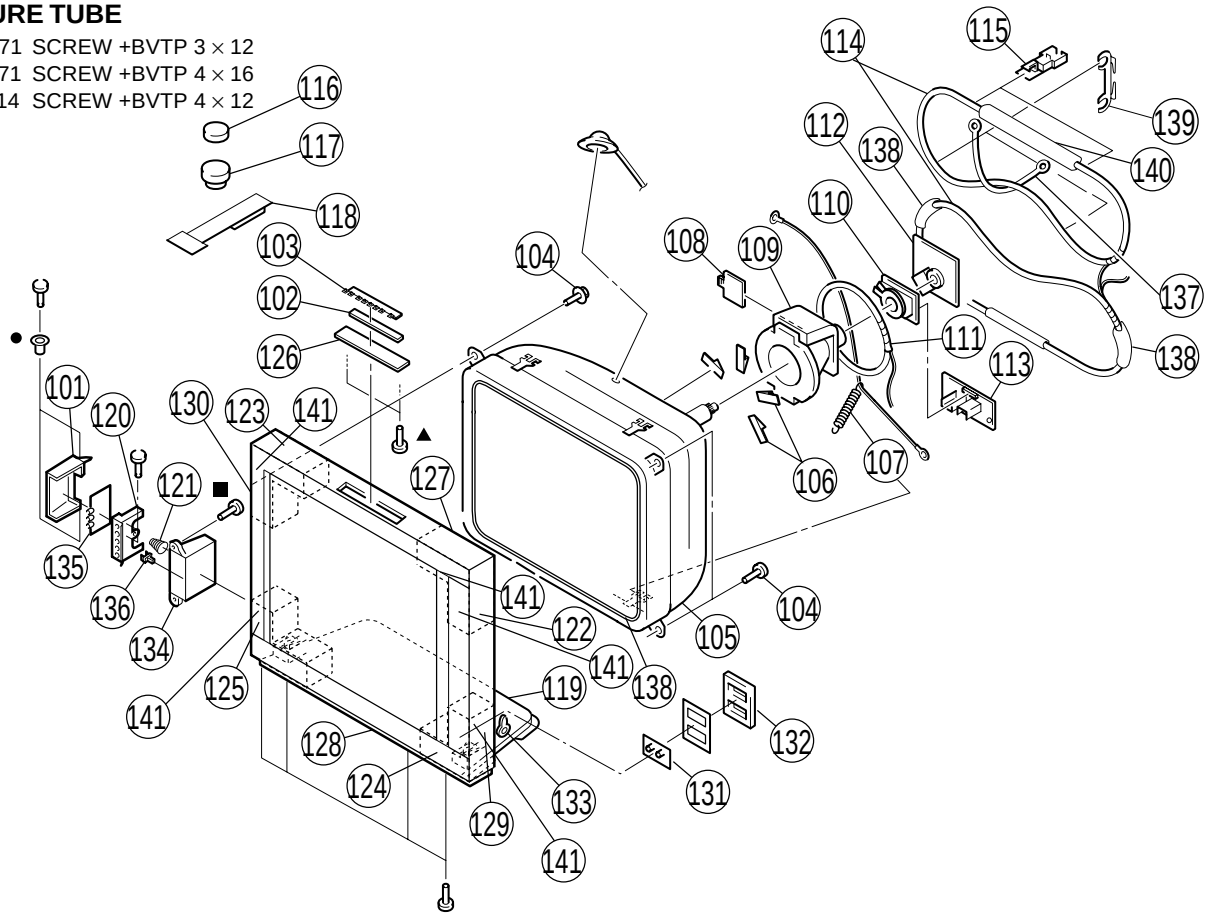


REF. NO.		PART NO.	DESCRIPTION	REMARK
51		8-598-477-10	TUNER, FSS BTF-WG411 (KV-ES29N90)	
		8-598-452-20	TUNER, FSS BTF-WG422 (KV-ES29M61)	
52		8-598-476-00	TUNER, FSS BTF-FG401 (KV-ES29N90)	
		8-598-508-10	TUNER, FSS BTF-LG436 (KV-ES29M61)	
53	*	A-1299-155-A	A BOARD COMPLETE (KV-ES29N90)	
	*	A-1299-173-A	A BOARD COMPLETE (KV-ES29M61)	
54	*	A-1136-054-A	B3 BOARD COMPLETE (KV-ES29N90)	
	*	A-1136-086-A	B3 BOARD COMPLETE (KV-ES29M61)	
55	*	A-1343-743-D	E BOARD MOUNTED (KV-ES29N90)	
	*	A-1343-820-A	E BOARD MOUNTED (KV-ES29M61)	
56	*	A-1343-742-B	D1 BOARD MOUNTED (KV-ES29N90)	
	*	A-1343-819-A	D1 BOARD MOUNTED (KV-ES29M61)	
57	*	A-1346-914-A	D BOARD COMPLETE (KV-ES29N90)	
	*	A-1346-919-A	D BOARD COMPLETE (KV-ES29M61)	
58	⚠	1-453-325-11	TRANSFORMER ASSY, FLYBACK (NX-4522//J1I4)	
59	*	4-071-314-01	BRACKET, MAIN	
60	⚠	4-022-115-00	HOLDER, AC CORD (KV-ES29N90)	
	⚠	4-022-115-31	HOLDER, AC CORD (KV-ES29M61)	
61	⚠	1-792-065-11	CORD, FILTER WITH POWER	
62	*	4-071-315-01	BRACKET, TERMINAL	

REF. NO.		PART NO.	DESCRIPTION	REMARK
63	*	A-1241-414-A	F1 BOARD MOUNTED (KV-ES29N90)	
	*	A-1241-415-A	F1 BOARD MOUNTED (KV-ES29M61)	
64	*	4-071-307-02	HOLDER, F2 /H1	
65	*	A-1372-728-A	H1 BOARD MOUNTED (KV-ES29N90)	
	*	A-1372-784-A	H1 BOARD MOUNTED (KV-ES29M61)	
66		4-071-305-02	BUTTON, POWER	
67	*	A-1394-979-A	J BOARD COMPLETE (KV-ES29N90)	
	*	A-1394-981-A	J BOARD COMPLETE (KV-ES29M61)	
68	*	A-1136-069-A	BC4 BOARD COMPLETE	
69	*	A-1241-403-A	F2 BOARD MOUNTED (KV-ES29N90)	
	*	A-1241-416-A	F2 BOARD MOUNTED (KV-ES29M61)	
70	*	4-071-316-01	SUPPORTER, PWB	
71	*	A-1343-791-A	DH BOARD MOUNTED (KV-ES29N90)	
	*	A-1343-821-A	DH BOARD MOUNTED (KV-ES29M61)	
72	*	A-1299-092-A	A1 BOARD COMPLETE(KV-ES29N90)	
	*	A-1299-172-A	A1 BOARD COMPLETE (KV-ES29M61)	
73	*	A-1342-535-A	V BOARD MOUNTED (KV-ES29M61 ONLY)	
74		1-792-458-11	CABLE, RF (KV-ES29N90)	
		1-790-082-11	CABLE, RF (KV-ES29M61)	
75		1-543-827-31	CLAMP, SLEEVE FERRITE	

7-3. PICTURE TUBE

●: 7-685-648-71 SCREW +BVTP 3 × 12
■: 7-685-663-71 SCREW +BVTP 4 × 16
▲: 7-685-661-14 SCREW +BVTP 4 × 12



REF. NO.		PART NO.	DESCRIPTION	REMARK
101		4-071-308-01	DOOR, CONTROL	
102	*	A-1372-730-A	H3 BOARD MOUNTED (KV-ES29N90)	
	*	A-1372-786-A	H3 BOARD MOUNTED (KV-ES29M61)	
103		4-071-312-02	BUTTON, TOP SW	
104		4-046-765-12	SCREW, TAPPING 7+CROWN WASHER	
105	⚠	8-735-056-05	PICTURE TUBE (M68LNH070X) (KV-ES29M61)	
	⚠	8-735-057-05	PICTURE TUBE (M68LNH070X) (KV-ES29N90)	
106		3-703-961-01	SPACER, DY (KV-ES29N90)	
		4-064-818-01	SPACER, DY (KV-ES29M61)	
107		4-369-318-41	SPRING, TENSION (KV-ES29M61)	
		4-369-318-61	SPRING, TENSION (KV-ES29N90)	
108		2-163-920-01	PLATE, TLH CORRECTION	
109	⚠	8-451-504-61	DEFLECTION YOKE (Y29RSC-S2)	
110		8-453-011-11	NA299-M	
111		1-452-896-11	COIL, NA ROTATION (RT200) (KV-ES29N90)	
		1-452-896-91	COIL, NA ROTATION (RT200) (KV-ES29M61)	
112	*	A-1332-005-A	C BOARD MOUNTED (KV-ES29N90)	
	*	A-1332-034-A	C BOARD MOUNTED (KV-ES29M61)	
113	*	A-1342-515-A	VM BOARD MOUNTED (KV-ES29N90)	
	*	A-1342-536-A	VM BOARD MOUNTED (KV-ES29M61)	
114	⚠	1-419-519-11	COIL, DEMAGNETIC (KV-ES29N90)	
	⚠	1-419-294-11	COIL, DEGAUSSING (KV-ES29M61)	
115	*	4-062-970-11	CLIP (29RSN), DGC	
116		1-452-032-00	MAGNET, DISC	
117		1-452-094-00	CIRCULAR DISC MAGNET B	
118		4-051-734-21	PIECE B(120), CONV. CORRECT (KV-ES29N90)	
		4-051-734-41	PIECE B(120), CONV. CORRECT (KV-ES29M61)	
119	*	4-071-297-02	COVER, FRONT	

REF. NO.		PART NO.	DESCRIPTION	REMARK
120	*	X-4037-516-1	HOLDER ASSY, CONTROL (KV-ES29N90)	
	*	X-4037-280-1	HOLDER ASSY, CONTROL (KV-ES29M61)	
121		4-071-323-01	SPRING, CONE	
122	*	4-071-298-02	BRACKET (TR), CRT	
123	*	4-071-299-02	BRACKET (TL), CRT	
124	*	4-071-300-02	BRACKET (BR), CRT	
125	*	4-071-301-02	BRACKET (BL), CRT	
126	*	4-071-311-02	HOLDER, H3	
127		X-4037-509-1	FRAME SUB ASSY, TOP (KV-ES29N90)	
		X-4037-416-1	FRAME SUB ASSY, TOP (KV-ES29M61)	
128		X-4037-417-1	FRAME SUB ASSY, BOTTOM	
129		X-4037-587-1	FRAME SUB ASSY, RIGHT (KV-ES29N90)	
		X-4037-418-1	FRAME SUB ASSY, RIGHT (KV-ES29M61)	
130		X-4037-419-1	FRAME SUB ASSY, LEFT	
131	*	4-071-306-01	LIGHT, GUIDE	
132	*	4-072-950-01	BRACKET, LIGHT GUIDE	
133		4-073-080-01	FASTEN	
134	*	4-071-310-04	BRACKET, SIDE	
135	*	A-1372-729-A	H2 BOARD MOUNTED (KV-ES29N90)	
	*	A-1372-785-A	H2 BOARD MOUNTED (KV-ES29M61)	
136		4-047-464-01	CATCHER, PUSH	
137		4-068-028-02	BAND, DGC	
138	*	4-074-513-01	CUSHION (L), DGC (KV-ES29N90)	
	*	4-074-513-31	CUSHION (L), DGC (KV-ES29M61)	
139		4-064-883-11	HOLDER, DGC	
140	*	4-063-935-02	CUSHION (5 X 550), DGC (KV-ES29N90)	
	*	4-063-935-21	CUSHION (5 X 550), DGC (KV-ES29M61)	
141		4-072-956-01	SCREW SPECIAL (DIA.8) (+TP 4 X 9)	

SECTION 8
ELECTRICAL PARTS LIST

A

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All resistors are in ohms
- F : nonflammable

CAPACITORS
- MF : µF, PF : µµF

COILS
- MMH : mH, UH : µH

REF. NO.	PART NO.	DESCRIPTION			REMARK
*	A-1299-155-A	A BOARD COMPLETE (KV-ES29N90)			
*	A-1299-173-A	A BOARD COMPLETE (KV-ES29M61)			
		**********			
*	1-555-110-00	CABLE, PIN			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
		<CAPACITOR>			
C004	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C005	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C006	1-107-725-11	CERAMIC CHIP	0.1MF	10%	16V
C007	1-126-933-11	ELECT	100MF	20%	16V
C009	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C010	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C012	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C013	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C014	1-126-967-11	ELECT	47MF	20%	50V
C015	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C016	1-102-852-91	CERAMIC	47PF	5%	50V
C017	1-102-525-11	CERAMIC	68PF	5%	50V
C018	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C019	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C020	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C021	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C024	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C028	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C030	1-126-960-11	ELECT	1MF	20%	50V
C031	1-107-725-11	CERAMIC CHIP	0.1MF	10%	16V
C032	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C033	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C034	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C101	1-126-964-11	ELECT (KV-ES29N90 ONLY)	10MF	20%	50V
C103	1-107-725-11	CERAMIC CHIP	0.1MF	10%	16V
C104	1-126-933-11	ELECT	100MF	20%	16V
C106	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C107	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C108	1-126-933-11	ELECT	100MF	20%	16V
C109	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C110	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C111	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C112	1-126-933-11	ELECT	100MF	20%	16V
C113	1-126-967-11	ELECT	47MF	20%	50V
C114	1-126-967-11	ELECT	47MF	20%	50V
C301	1-126-767-11	ELECT	1000MF	20%	16V
C326	1-126-964-11	ELECT	10MF	20%	50V
C1201	1-107-725-11	CERAMIC CHIP	0.1MF	10%	16V
C1202	1-107-725-11	CERAMIC CHIP	0.1MF	10%	16V
C1203	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C1204	1-164-690-91	CERAMIC CHIP	0.0022MF	5%	50V
C1205	1-164-690-91	CERAMIC CHIP	0.0022MF	5%	50V
C1206	1-126-965-11	ELECT	22MF	20%	50V
C1207	1-107-725-11	CERAMIC CHIP	0.1MF	10%	16V
C1208	1-126-023-11	ELECT	100MF	20%	16V
C1209	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C1210	1-125-838-91	CERAMIC CHIP	2.2MF	10%	6.3V
C1211	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C1212	1-125-838-91	CERAMIC CHIP	2.2MF	10%	6.3V
C1213	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C1214	1-126-055-11	ELECT	470MF	20%	50V
C1215	1-126-055-11	ELECT	470MF	20%	50V
C1216	1-126-943-11	ELECT	2200MF	20%	25V
C1217	1-126-943-11	ELECT	2200MF	20%	25V
C1219	1-126-961-11	ELECT	2.2MF	20%	50V
C1220	1-126-961-11	ELECT	2.2MF	20%	50V
C1221	1-126-933-11	ELECT	100MF	20%	16V
C1222	1-125-838-91	CERAMIC CHIP	2.2MF	10%	6.3V
C1223	1-125-838-91	CERAMIC CHIP	2.2MF	10%	6.3V
C1224	1-125-838-91	CERAMIC CHIP	2.2MF	10%	6.3V
C1225	1-125-838-91	CERAMIC CHIP	2.2MF	10%	6.3V
C1241	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1242	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1243	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1244	1-110-617-51	ELECT	2200MF	20%	50V
C1245	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1246	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C1247	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1248	1-110-617-51	ELECT	2200MF	20%	50V
C1249	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C1251	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C1252	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C1253	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1255	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C1256	1-137-194-81	MYLAR	0.47MF	5%	50V
C1258	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1259	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1260	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C1262	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C1263	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C1264	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C1265	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1267	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C1268	1-137-194-81	MYLAR	0.47MF	5%	50V
C1270	1-163-007-11	CERAMIC CHIP	680PF	10%	50V

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REF. NO.	PART NO.	DESCRIPTION			REMARK
C1271	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C1272	1-126-941-11	ELECT	470MF	20%	25V
C1273	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1274	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1275	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C1276	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C1277	1-164-690-91	CERAMIC CHIP	0.0022MF	5%	50V
C1279	1-164-690-91	CERAMIC CHIP	0.0022MF	5%	50V
C1281	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1282	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C1283	1-164-690-91	CERAMIC CHIP	0.0022MF	5%	50V
C1284	1-164-690-91	CERAMIC CHIP	0.0022MF	5%	50V
C1285	1-126-933-11	ELECT	100MF	20%	16V
C1286	1-126-933-11	ELECT	100MF	20%	16V
C1287	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C1288	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C1289	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C1290	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C1291	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C1292	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C1297	1-136-177-00	MYLAR	1MF	5%	50V
C1298	1-136-177-00	MYLAR	1MF	5%	50V
C1301	1-126-933-11	ELECT	100MF	20%	16V
C1302	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C2200	1-126-964-11	ELECT	10MF	20%	50V
C2201	1-126-964-11	ELECT	10MF	20%	50V
C2202	1-126-964-11	ELECT	10MF	20%	50V
C2203	1-126-963-11	ELECT	4.7MF	20%	50V
C2204	1-125-838-91	CERAMIC CHIP	2.2MF	10%	6.3V
C2205	1-125-838-91	CERAMIC CHIP	2.2MF	10%	6.3V
C2206	1-126-964-11	ELECT	10MF	20%	50V
C2207	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
C2208	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
C2209	1-126-968-11	ELECT	100MF	20%	50V
C2600	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C2601	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C2602	1-126-933-11	ELECT	100MF	20%	16V
C2603	1-126-933-11	ELECT	100MF	20%	16V
C2605	1-126-925-11	ELECT	470MF	20%	10V
C2606	1-164-344-11	CERAMIC CHIP	0.068MF	10%	25V
C2608	1-126-916-11	ELECT	1000MF	20%	6.3V
C2609	1-126-935-11	ELECT	470MF	20%	6.3V
C2610	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C2611	1-126-934-11	ELECT	220MF	20%	16V
C2612	1-104-665-11	ELECT	100MF	20%	25V
C2613	1-104-665-11	ELECT	100MF	20%	25V
C2614	1-126-925-11	ELECT	470MF	20%	10V
C3302	1-126-964-11	ELECT (KV-ES29N90 ONLY)	10MF	20%	50V
C3330	1-107-725-11	CERAMIC CHIP	0.1MF	10%	16V
C3331	1-126-933-11	ELECT	100MF	20%	16V
C3336	1-126-933-11	ELECT	100MF	20%	16V
C3337	1-163-809-11	CERAMIC CHIP (KV-ES29N90 ONLY)	0.047MF	10%	25V
C3338	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C3350	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C3351	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C3352	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C3353	1-126-933-11	ELECT	100MF	20%	16V
C3354	1-126-967-11	ELECT	47MF	20%	50V
C3355	1-126-967-11	ELECT	47MF	20%	50V

<CONNECTOR>

CN1100*	1-560-218-00	PIN, CONNECTOR 7P
CN1108	1-695-299-11	CONNECTOR, BOARD TO BOARD 50P
CN1116	1-695-915-11	TAB (CONTACT)
CN1118	1-793-493-11	CONNECTOR, BOARD TO BOARD 20P (KV-ES29M61 ONLY)
CN1140	1-793-494-11	CONNECTOR, BOARD TO BOARD 40P
CN1160*	1-564-513-11	PLUG, CONNECTOR 10P
CN1162	1-900-903-64	CONNECTOR ASSY 20P
CN1180	1-793-495-11	CONNECTOR, BOARD TO BOARD 50P
CN1190*	1-564-510-11	PLUG, CONNECTOR 7P
CN1193*	1-564-513-11	PLUG, CONNECTOR 10P
CN1195*	1-564-506-11	PLUG, CONNECTOR 3P
CN1196*	1-508-797-00	PIN, CONNECTOR 4P

<COMPOSITION CIRCUIT BLOCK>

CP1300	1-251-658-31	SPLITTER RF

<DIODE>

D001	8-719-073-01	DIODE MA111-(K8).S0
D002	8-719-073-01	DIODE MA111-(K8).S0
D003	8-719-073-01	DIODE MA111-(K8).S0
D004	8-719-073-01	DIODE MA111-(K8).S0
D005	8-719-073-01	DIODE MA111-(K8).S0
D006	8-719-073-01	DIODE MA111-(K8).S0
D007	8-719-158-18	DIODE RD5.6SB3
D013	8-719-158-18	DIODE RD5.6SB3
D014	8-719-073-01	DIODE MA111-(K8).S0
D100	8-719-073-01	DIODE MA111-(K8).S0 (KV-ES29M61 ONLY)
D300	8-719-073-01	DIODE MA111-(K8).S0
D301	8-719-073-01	DIODE MA111-(K8).S0
D302	8-719-073-01	DIODE MA111-(K8).S0
D317	8-719-073-01	DIODE MA111-(K8).S0
D1205	8-719-158-35	DIODE RD9.1SB
D1208	8-719-073-01	DIODE MA111-(K8).S0
D1209	8-719-073-01	DIODE MA111-(K8).S0
D2200	8-719-158-35	DIODE RD9.1SB
D2201	8-719-158-35	DIODE RD9.1SB
D2600	8-719-500-70	DIODE D5S4M

<FERRITE BEAD>

FB001	1-414-233-22	INDUCTOR CHIP 0UH
FB002	1-414-233-22	INDUCTOR CHIP 0UH
FB003	1-414-233-22	INDUCTOR CHIP 0UH
FB004	1-414-233-22	INDUCTOR CHIP 0UH
FB005	1-414-233-22	INDUCTOR CHIP 0UH
FB006	1-414-233-22	INDUCTOR CHIP 0UH
FB007	1-414-233-22	INDUCTOR CHIP 0UH
FB008	1-414-233-22	INDUCTOR CHIP 0UH

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REF. NO.	PART NO.	DESCRIPTION		REMARK
FB1205	1-410-397-21	FERRITE	1.1UH	
FB1206	1-410-397-21	FERRITE	1.1UH	
FB1207	1-410-397-21	FERRITE	1.1UH	
FB1208	1-410-397-21	FERRITE	1.1UH	
FB1300	1-216-295-91	SHORT	0	
		<FILTER>		
FL001	1-236-071-11	ENCAPSULATED COMPONENT		
		<IC>		
IC001	8-752-913-11	IC CXP750096-018Q (KV-ES29N90)		
IC001	8-752-910-27	IC CXP750096-013Q (KV-ES29M61)		
IC002	8-759-042-02	IC S-80743AL-A7-S		
IC003	8-759-527-76	IC M24C08-MN6T		
IC004	8-759-527-75	IC M24C04-MN6T		
IC100	8-759-042-02	IC S-80743AL-A7-S (KV-ES29M61 ONLY)		
IC1201	8-759-273-12	IC TDA7315D013TR		
IC1203	8-759-553-45	IC TDA7481		
IC1204	8-759-553-45	IC TDA7481		
IC1205	8-759-100-96	IC UPC4558G2		
IC1205	8-759-100-96	IC UPC4558G2		
IC2200	8-759-745-64	IC NJM4560M		
IC2600	8-759-394-36	IC BA09T		
IC2601	8-759-450-47	IC BA05T		
IC2603	8-759-640-19	IC PQ1CG2032FZ		
IC2604	8-759-644-37	IC PQ5EV3		
		<CHIP CONDUCTOR>		
JR001	1-216-295-91	SHORT	0	
JR002	1-216-295-91	SHORT	0	
JR102	1-216-295-91	SHORT	0 (KV-ES29M61 ONLY)	
JR107	1-216-295-91	SHORT	0	
JR2601	1-216-295-91	SHORT	0	
		<COIL>		
L001	1-414-856-11	INDUCTOR	10UH	
L002	1-414-856-11	INDUCTOR	10UH	
L003	1-414-751-11	INDUCTOR	1UH	
L005	1-414-856-11	INDUCTOR	10UH	
L101	1-414-856-11	INDUCTOR	10UH	
L102	1-414-856-11	INDUCTOR	10UH	
L103	1-414-856-11	INDUCTOR	10UH	
L104	1-414-856-11	INDUCTOR	10UH	
L105	1-414-856-11	INDUCTOR	10UH	
L1201	1-414-187-11	INDUCTOR	47UH	
L1202	1-416-857-11	INDUCTOR	65UH	
L1203	1-416-857-11	INDUCTOR	65UH	
L1204	1-416-966-11	INDUCTOR	0UH	
L1205	1-416-966-11	INDUCTOR	0UH	
L1300	1-414-856-11	INDUCTOR	10UH	
L2600	1-419-249-11	INDUCTOR	15UH	
L2601	1-419-249-11	INDUCTOR	15UH	
L2602	1-412-525-31	INDUCTOR	10UH	
L2603	1-412-525-31	INDUCTOR	10UH	
L3302	1-414-856-11	INDUCTOR	10UH	
L3303	1-414-856-11	INDUCTOR	10UH	
L3304	1-414-856-11	INDUCTOR	10UH	
L3305	1-414-856-11	INDUCTOR	10UH	
L3306	1-414-856-11	INDUCTOR	10UH	
		<IC LINK>		
PS1201	1-532-686-21	LINK, IC 2.7A/150V		
PS1202	1-532-686-21	LINK, IC 2.7A/150V		
PS1203	1-532-686-21	LINK, IC 2.7A/150V		
PS1204	1-532-686-21	LINK, IC 2.7A/150V		
		<TRANSISTOR>		
Q001	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q002	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q003	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q004	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q005	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q006	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q007	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q101	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q301	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q313	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q1205	1-801-806-11	TRANSISTOR DTC144EKA-T146		
Q1206	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q1207	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q1209	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q1210	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q1211	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q2200	1-801-806-11	TRANSISTOR DTC144EKA-T146		
Q2201	1-801-806-11	TRANSISTOR DTC144EKA-T146		
Q3300	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
		<RESISTOR>		
R001	1-216-033-00	RES,CHIP	220 5%	1/10W
R002	1-216-033-00	RES,CHIP	220 5%	1/10W
R004	1-216-295-91	SHORT	0	
R005	1-216-295-91	SHORT	0	
R006	1-216-033-00	RES,CHIP	220 5%	1/10W
R007	1-216-033-00	RES,CHIP	220 5%	1/10W
		(KV-ES29N90 ONLY)		
R008	1-216-065-91	RES,CHIP	4.7K 5%	1/10W
R009	1-216-065-91	RES,CHIP	4.7K 5%	1/10W
		(KV-ES29N90 ONLY)		
R010	1-216-057-00	RES,CHIP	2.2K 5%	1/10W
R011	1-216-065-91	RES,CHIP	4.7K 5%	1/10W
R012	1-216-057-00	RES,CHIP	2.2K 5%	1/10W
R013	1-216-065-91	RES,CHIP	4.7K 5%	1/10W
R014	1-216-025-91	RES,CHIP	100 5%	1/10W
R015	1-216-025-91	RES,CHIP	100 5%	1/10W
R016	1-216-057-00	RES,CHIP	2.2K 5%	1/10W
R017	1-216-049-91	RES,CHIP	1K 5%	1/10W
R018	1-216-045-00	RES,CHIP	680 5%	1/10W
R019	1-216-049-91	RES,CHIP	1K 5%	1/10W

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R020	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R021	1-216-295-91	SHORT	0		
R022	1-216-033-00	RES,CHIP	220	5%	1/10W
R023	1-216-025-91	RES,CHIP	100	5%	1/10W
R024	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R025	1-216-033-00	RES,CHIP	220	5%	1/10W
R026	1-216-033-00	RES,CHIP	220	5%	1/10W
R027	1-216-049-91	RES,CHIP	1K	5%	1/10W
R028	1-216-049-91	RES,CHIP	1K	5%	1/10W
R029	1-216-049-91	RES,CHIP	1K	5%	1/10W
R030	1-216-025-91	RES,CHIP (KV-ES29N90 ONLY)	100	5%	1/10W
R031	1-216-033-00	RES,CHIP	220	5%	1/10W
R032	1-216-049-91	RES,CHIP	1K	5%	1/10W
R033	1-216-033-00	RES,CHIP	220	5%	1/10W
R035	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R036	1-216-083-00	RES,CHIP (KV-ES29N90)	27K	5%	1/10W
R036	1-216-033-00	RES,CHIP (KV-ES29M61)	220	5%	1/10W
R037	1-216-083-00	RES,CHIP (KV-ES29N90)	27K	5%	1/10W
R037	1-216-033-00	RES,CHIP (KV-ES29M61)	220	5%	1/10W
R038	1-216-045-00	RES,CHIP	680	5%	1/10W
R039	1-216-025-91	RES,CHIP	100	5%	1/10W
R040	1-216-033-00	RES,CHIP	220	5%	1/10W
R041	1-216-025-91	RES,CHIP	100	5%	1/10W
R042	1-216-295-91	SHORT	0		
R043	1-216-025-91	RES,CHIP	100	5%	1/10W
R044	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R045	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R046	1-216-033-00	RES,CHIP	220	5%	1/10W
R047	1-216-033-00	RES,CHIP	220	5%	1/10W
R048	1-216-073-00	RES,CHIP	10K	5%	1/10W
R049	1-216-689-11	METAL CHIP (KV-ES29N90 ONLY)	39K	0.50%	1/10W
R050	1-216-689-11	METAL CHIP (KV-ES29N90 ONLY)	39K	0.50%	1/10W
R051	1-216-049-91	RES,CHIP	1K	5%	1/10W
R052	1-216-049-91	RES,CHIP	1K	5%	1/10W
R053	1-216-049-91	RES,CHIP	1K	5%	1/10W
R054	1-216-033-00	RES,CHIP	220	5%	1/10W
R055	1-216-295-91	SHORT	0		
R056	1-216-295-91	SHORT	0		
R057	1-216-295-91	SHORT	0		
R058	1-216-295-91	SHORT	0		
R059	1-216-033-00	RES,CHIP	220	5%	1/10W
R060	1-216-033-00	RES,CHIP	220	5%	1/10W
R061	1-216-025-91	RES,CHIP	100	5%	1/10W
R062	1-216-049-91	RES,CHIP	1K	5%	1/10W
R063	1-216-025-91	RES,CHIP	100	5%	1/10W
R064	1-216-025-91	RES,CHIP	100	5%	1/10W
R065	1-216-045-00	RES,CHIP	680	5%	1/10W
R066	1-216-049-91	RES,CHIP	1K	5%	1/10W
R067	1-216-073-00	RES,CHIP	10K	5%	1/10W
R068	1-216-073-00	RES,CHIP	10K	5%	1/10W
R069	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R070	1-216-033-00	RES,CHIP	220	5%	1/10W

REF. NO.	PART NO.	DESCRIPTION			REMARK
R071	1-216-025-91	RES,CHIP	100	5%	1/10W
R072	1-216-025-91	RES,CHIP	100	5%	1/10W
R073	1-216-055-00	RES,CHIP	1.8K	5%	1/10W
R074	1-216-055-00	RES,CHIP	1.8K	5%	1/10W
R075	1-216-055-00	RES,CHIP	1.8K	5%	1/10W
R076	1-216-295-91	SHORT	0		
R077	1-216-025-91	RES,CHIP	100	5%	1/10W
R078	1-216-295-91	SHORT	0		
R079	1-216-025-91	RES,CHIP	100	5%	1/10W
R080	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R081	1-216-025-91	RES,CHIP	100	5%	1/10W
R082	1-216-041-00	RES,CHIP	470	5%	1/10W
R083	1-216-049-91	RES,CHIP	1K	5%	1/10W
R084	1-216-049-91	RES,CHIP	1K	5%	1/10W
R085	1-208-798-11	METAL CHIP	4.7K	0.50%	1/10W
R086	1-216-073-00	RES,CHIP	10K	5%	1/10W
R087	1-216-033-00	RES,CHIP	220	5%	1/10W
R088	1-216-049-91	RES,CHIP	1K	5%	1/10W
R089	1-216-049-91	RES,CHIP	1K	5%	1/10W
R090	1-216-295-91	SHORT	0		
R091	1-216-295-91	SHORT	0		
R092	1-216-033-00	RES,CHIP	220	5%	1/10W
R093	1-216-073-00	RES,CHIP	10K	5%	1/10W
R094	1-216-073-00	RES,CHIP	10K	5%	1/10W
R095	1-216-049-91	RES,CHIP	1K	5%	1/10W
R096	1-216-049-91	RES,CHIP	1K	5%	1/10W
R097	1-216-025-91	RES,CHIP	100	5%	1/10W
R098	1-216-025-91	RES,CHIP	100	5%	1/10W
R099	1-216-025-91	RES,CHIP	100	5%	1/10W
R100	1-216-025-91	RES,CHIP (KV-ES29N90 ONLY)	100	5%	1/10W
R101	1-216-025-91	RES,CHIP (KV-ES29M61 ONLY)	100	5%	1/10W
R102	1-216-025-91	RES,CHIP (KV-ES29M61 ONLY)	100	5%	1/10W
R104	1-216-025-91	RES,CHIP (KV-ES29N90 ONLY)	100	5%	1/10W
R105	1-216-295-91	SHORT	0		
R106	1-216-049-91	RES,CHIP (KV-ES29N90 ONLY)	1K	5%	1/10W
R109	1-216-041-00	RES,CHIP	470	5%	1/10W
R110	1-216-043-91	RES,CHIP	560	5%	1/10W
R111	1-216-025-91	RES,CHIP	100	5%	1/10W
R112	1-216-025-91	RES,CHIP	100	5%	1/10W
R114	1-216-065-91	RES,CHIP (KV-ES29N90 ONLY)	4.7K	5%	1/10W
R115	1-216-065-91	RES,CHIP (KV-ES29N90 ONLY)	4.7K	5%	1/10W
R116	1-216-025-91	RES,CHIP	100	5%	1/10W
R117	1-216-025-91	RES,CHIP	100	5%	1/10W
R118	1-216-025-91	RES,CHIP	100	5%	1/10W
R301	1-216-113-00	RES,CHIP	470K	5%	1/10W
R302	1-216-089-91	RES,CHIP	47K	5%	1/10W
R303	1-216-089-91	RES,CHIP	47K	5%	1/10W
R1201	1-216-033-00	RES,CHIP	220	5%	1/10W
R1202	1-216-033-00	RES,CHIP	220	5%	1/10W
R1203	1-216-079-00	RES,CHIP	18K	5%	1/10W
R1204	1-216-079-00	RES,CHIP	18K	5%	1/10W
R1205	1-216-089-91	RES,CHIP	47K	5%	1/10W

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R1206	1-216-089-91	RES,CHIP	47K	5%	1/10W
R1236	1-208-808-11	METAL CHIP	12K	0.50%	1/10W
R1237	1-216-085-00	RES,CHIP	33K	5%	1/10W
R1238	1-216-081-00	RES,CHIP	22K	5%	1/10W
R1239	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R1240	1-216-085-00	RES,CHIP	33K	5%	1/10W
R1241	1-216-073-00	RES,CHIP	10K	5%	1/10W
R1242	1-216-073-00	RES,CHIP	10K	5%	1/10W
R1244	1-216-073-00	RES,CHIP	10K	5%	1/10W
R1246	1-208-808-11	METAL CHIP	12K	0.50%	1/10W
R1247	1-216-085-00	RES,CHIP	33K	5%	1/10W
R1248	1-216-075-00	RES,CHIP	12K	5%	1/10W
R1249	1-216-025-91	RES,CHIP	100	5%	1/10W
R1250	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R1252	1-216-073-00	RES,CHIP	10K	5%	1/10W
R1253	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R1254	1-216-075-00	RES,CHIP	12K	5%	1/10W
R1255	1-216-075-00	RES,CHIP	12K	5%	1/10W
R1256	1-216-073-00	RES,CHIP	10K	5%	1/10W
R1257	1-216-025-91	RES,CHIP	100	5%	1/10W
R1258	1-216-075-00	RES,CHIP	12K	5%	1/10W
R1259	1-216-073-00	RES,CHIP	10K	5%	1/10W
R1260	1-216-029-00	RES,CHIP	150	5%	1/10W
R1261	1-216-029-00	RES,CHIP	150	5%	1/10W
R1264	1-216-041-00	RES,CHIP	470	5%	1/10W
R1265	1-216-041-00	RES,CHIP	470	5%	1/10W
R1266	1-216-049-91	RES,CHIP	1K	5%	1/10W
R1267	1-216-077-91	RES,CHIP	15K	5%	1/10W
R1269	1-216-025-91	RES,CHIP	100	5%	1/10W
R1270	1-216-089-91	RES,CHIP	47K	5%	1/10W
R1271	1-216-049-91	RES,CHIP	1K	5%	1/10W
R1272	1-216-049-91	RES,CHIP	1K	5%	1/10W
R1273	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R1275	1-216-081-00	RES,CHIP	22K	5%	1/10W
R1276	1-216-081-00	RES,CHIP	22K	5%	1/10W
R1277	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R1278	1-125-838-91	CERAMIC CHIP	2.2MF	10%	6.3V
R1279	1-125-838-91	CERAMIC CHIP	2.2MF	10%	6.3V
R1280	1-216-029-00	RES,CHIP	150	5%	1/10W
R1281	1-216-029-00	RES,CHIP	150	5%	1/10W
R1283	1-216-295-91	SHORT	0		
R1284	1-216-295-91	SHORT	0		
R1286	1-216-073-00	RES,CHIP	10K	5%	1/10W
R2200	1-216-021-00	RES,CHIP	68	5%	1/10W
R2201	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R2202	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R2203	1-216-021-00	RES,CHIP	68	5%	1/10W
R2204	1-216-073-00	RES,CHIP	10K	5%	1/10W
R2205	1-216-097-91	RES,CHIP	100K	5%	1/10W
R2206	1-216-117-00	RES,CHIP	680K	5%	1/10W
R2207	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R2208	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R2209	1-216-117-00	RES,CHIP	680K	5%	1/10W
R2210	1-216-089-91	RES,CHIP	47K	5%	1/10W
R2211	1-216-097-91	RES,CHIP	100K	5%	1/10W
R2212	1-216-073-00	RES,CHIP	10K	5%	1/10W
R2213	1-216-089-91	RES,CHIP	47K	5%	1/10W
R2214	1-216-089-91	RES,CHIP	47K	5%	1/10W
R2215	1-216-089-91	RES,CHIP	47K	5%	1/10W
R2600	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R2601	1-216-655-11	METAL CHIP	1.5K	0.50%	1/10W
R2602	1-208-781-11	METAL CHIP	910	0.50%	1/10W
R2603	1-208-790-11	METAL CHIP	2.2K	0.50%	1/10W
R2604	1-208-790-11	METAL CHIP	2.2K	0.50%	1/10W
R3300	1-216-043-91	RES,CHIP	560	5%	1/10W
R3320	1-216-073-00	RES,CHIP	10K	5%	1/10W
R3323	1-216-025-91	RES,CHIP	100	5%	1/10W
R3362	1-216-025-91	RES,CHIP	100	5%	1/10W
		(KV-ES29M61 ONLY)			
R3334	1-216-025-91	RES,CHIP	100	5%	1/10W
R3374	1-216-295-91	SHORT	0		
		<VARIABLE RESISTOR>			
RV3300	1-238-597-11	RES, ADJ, CARBON 1K			
		<TUNER>			
TU101	8-598-477-10	TUNER, FSS BTF-WG411 (KV-ES29N90)			
TU101	8-598-452-20	TUNER, FSS BTF-WG442 (KV-ES29M61)			
TU3301	8-598-476-00	TUNER, FSS BTF-FG401 (KV-ES29N90)			
TU3301	8-598-508-10	TUNER, FSS BTF-LG436 (KV-ES29M61)			
		<CRYSTAL>			
X001	1-567-928-11	VIBLATOR, CERAMIC			
**********					
*	A-1299-092-A	A1 BOARD COMPLETE (KV-ES29N90)			
*	A-1299-172-A	A1 BOARD COMPLETE (KV-ES29N90)			
		**********			
		<CAPACITOR>			
C8103	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8104	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8105	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8106	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8107	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8108	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8109	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8110	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8111	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8112	1-163-001-11	CERAMIC CHIP	220PF	10.00%	50V
C8116	1-164-161-11	CERAMIC CHIP	0.0022UF	10.00%	50V
C8117	1-126-382-11	ELECT	100UF	20.00%	16V
C8118	1-127-532-11	ELECT	47UF	20.00%	6.3V
C8119	1-126-795-11	ELECT	10UF	20.00%	25V
C8120	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8121	1-125-838-91	CERAMIC CHIP	2.2UF	10%	6.3V
C8122	1-125-838-91	CERAMIC CHIP	2.2UF	10%	6.3V
C8123	1-127-532-11	ELECT	47UF	20.00%	6.3V
C8124	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8125	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V

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REF. NO.	PART NO.	DESCRIPTION			REMARK
C8126	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C8127	1-163-235-11	CERAMIC CHIP	22PF	5.00% 50V	
C8128	1-163-235-11	CERAMIC CHIP	22PF	5.00% 50V	
C8129	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C8130	1-126-382-11	ELECT	100UF	20.00% 16V	
C8131	1-126-382-11	ELECT	100UF	20.00% 16V	
C8132	1-125-838-91	CERAMIC CHIP	2.2UF	10% 6.3V	
C8133	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C8134	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C8135	1-126-382-11	ELECT	100UF	20.00% 16V	
C8136	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8137	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8138	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8139	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8140	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8141	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8142	1-163-235-11	CERAMIC CHIP	22PF	5.00% 50V	
C8143	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C8144	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8145	1-163-233-11	CERAMIC CHIP	18PF	5.00% 50V	
C8146	1-107-823-11	CERAMIC CHIP	0.47UF	10.00% 16V	
C8147	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C8150	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C8155	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C8161	1-126-382-11	ELECT	100UF	20.00% 16V	
C8162	1-164-505-11	CERAMIC CHIP	2.2UF	16V	
C8163	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C8166	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8167	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C8168	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C8197	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C8198	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C8199	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C8200	1-216-295-91	SHORT	0		
C8201	1-216-295-91	SHORT	0		
C8202	1-107-823-11	CERAMIC CHIP	0.47UF	10.00% 16V	
C8203	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C8204	1-107-823-11	CERAMIC CHIP	0.47UF	10.00% 16V	
C8205	1-163-253-11	CERAMIC CHIP	120PF	5.00% 50V	
C8206	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8207	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8208	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8209	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8210	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C8211	1-115-340-11	CERAMIC CHIP	0.22UF	10.00% 25V	
C8212	1-125-838-91	CERAMIC CHIP	2.2UF	10% 6.3V	
C8213	1-125-838-91	CERAMIC CHIP	2.2UF	10% 6.3V	
C8218	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
		<CONNECTOR>			
CN8100	1-793-867-11	PIN, CONNECTOR (PC BORAD) 10P			
CN8101	1-793-867-11	PIN, CONNECTOR (PC BORAD) 10P			
		<FERRITE BEAD>			
FB8100	1-216-295-91	SHORT	0		
FB8101	1-216-295-91	SHORT	0		
FB8102	1-216-295-91	SHORT	0		
FB8103	1-216-295-91	SHORT	0		
FB8104	1-414-598-11	INDUCTOR CHIP	0UH		
FB8105	1-216-295-91	SHORT	0		
FB8106	1-414-598-11	INDUCTOR CHIP	0UH		
FB8108	1-414-598-11	INDUCTOR CHIP	0UH		
FB8109	1-414-598-11	INDUCTOR CHIP	0UH		
FB8110	1-414-598-11	INDUCTOR CHIP	0UH		
FB8111	1-414-598-11	INDUCTOR CHIP	0UH		
FB8112	1-414-598-11	INDUCTOR CHIP	0UH		
FB8113	1-414-598-11	INDUCTOR CHIP	0UH		
FB8114	1-414-598-11	INDUCTOR CHIP	0UH		
FB8115	1-414-598-11	INDUCTOR CHIP	0UH		
FB8116	1-414-598-11	INDUCTOR CHIP	0UH		
FB8117	1-414-598-11	INDUCTOR CHIP	0UH		
FB8118	1-414-598-11	INDUCTOR CHIP	0UH		
FB8119	1-414-598-11	INDUCTOR CHIP	0UH		
FB8120	1-414-598-11	INDUCTOR CHIP	0UH		
FB8121	1-414-598-11	INDUCTOR CHIP	0UH		
		<FILTER>			
FL8100	1-234-177-21	FILTER, CHIP EMI			
FL8101	1-234-177-21	FILTER, CHIP EMI			
FL8102	1-234-177-21	FILTER, CHIP EMI			
		<IC>			
IC8102	8-759-576-72	IC LF50CDT-TR			
IC8103	8-759-579-68	IC AK4524-TP			
IC8104	8-759-542-87	IC S-80827ANUP-EDQ-T2			
IC8105	8-759-651-20	IC TC9446F-00	2		
IC8106	8-759-242-70	IC TC7WU04F(TE12R)			
IC8107	8-759-459-69	IC S-80743AN-D7			
		<CHIP CONDUCTOR>			
JR8102	1-216-295-91	SHORT	0		
JR8103	1-216-295-91	SHORT	0		
		<COIL>			
L8100	1-412-026-11	INDUCTOR CHIP	1UH		
L8101	1-412-026-11	INDUCTOR CHIP	1UH		
L8102	1-412-026-11	INDUCTOR CHIP	1UH		
L8103	1-412-026-11	INDUCTOR CHIP	1UH		
L8104	1-412-026-11	INDUCTOR CHIP	1UH		
L8105	1-412-026-11	INDUCTOR CHIP	1UH		
		<RESISTOR>			
R8101	1-216-295-91	SHORT	0		
R8102	1-216-061-00	RES-CHIP	3.3K	5% 1/10W	
R8103	1-216-061-00	RES-CHIP	3.3K	5% 1/10W	
R8106	1-216-057-00	RES-CHIP	2.2K	5% 1/10W	
R8107	1-216-057-00	RES-CHIP	2.2K	5% 1/10W	

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R8120	1-216-049-91	RES-CHIP	1K	5%	1/10W
R8121	1-216-025-91	RES-CHIP	100	5%	1/10W
R8122	1-216-025-91	RES-CHIP	100	5%	1/10W
R8123	1-216-009-91	RES-CHIP	22	5%	1/10W
R8124	1-216-009-91	RES-CHIP	22	5%	1/10W
R8125	1-216-009-91	RES-CHIP	22	5%	1/10W
R8126	1-216-009-91	RES-CHIP	22	5%	1/10W
R8127	1-216-025-91	RES-CHIP	100	5%	1/10W
R8128	1-216-025-91	RES-CHIP	100	5%	1/10W
R8129	1-216-009-91	RES-CHIP	22	5%	1/10W
R8131	1-216-295-91	SHORT	0		
R8133	1-216-129-00	RES-CHIP	2.2M	5%	1/10W
R8134	1-216-295-91	SHORT	0		
R8135	1-216-295-91	SHORT	0		
R8137	1-216-295-91	SHORT	0		
R8138	1-216-049-91	RES-CHIP	1K	5%	1/10W
R8139	1-216-037-00	RES-CHIP	330	5%	1/10W
R8140	1-216-049-91	RES-CHIP	1K	5%	1/10W
R8141	1-216-295-91	SHORT	0		
R8143	1-216-295-91	SHORT	0		
R8144	1-216-025-91	RES-CHIP	100	5%	1/10W
R8145	1-216-033-00	RES-CHIP	220	5%	1/10W
R8146	1-216-033-00	RES-CHIP	220	5%	1/10W
R8147	1-216-295-91	SHORT	0		
R8148	1-216-295-91	SHORT	0		
R8149	1-216-037-00	RES-CHIP	330	5%	1/10W
R8155	1-216-295-91	SHORT	0		
R8157	1-216-037-00	RES-CHIP	330	5%	1/10W
R8158	1-216-037-00	RES-CHIP	330	5%	1/10W
R8161	1-216-025-91	RES-CHIP	100	5%	1/10W
R8168	1-216-025-91	RES-CHIP	100	5%	1/10W
R8169	1-216-097-91	RES-CHIP	100K	5%	1/10W
R8170	1-216-121-91	RES-CHIP	1M	5%	1/10W
R8171	1-216-025-91	RES-CHIP	100	5%	1/10W
R8172	1-216-025-91	RES-CHIP	100	5%	1/10W
R8173	1-216-025-91	RES-CHIP	100	5%	1/10W
R8200	1-216-073-00	RES-CHIP	10K	5%	1/10W
R8201	1-216-025-91	RES-CHIP	100	5%	1/10W
R8202	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R8203	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R8204	1-216-073-00	RES-CHIP	10K	5%	1/10W
R8205	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R8206	1-216-049-91	RES-CHIP	1K	5%	1/10W
R8207	1-216-091-00	RES-CHIP	56K	5%	1/10W
		<CRYSTAL>			
X8102	1-781-041-11	VIBRATOR, CRYSTAL			

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REF. NO.	PART NO.	DESCRIPTION			REMARK
	* A-1136-054-A	B3 BOARD COMPLETE (KV-ES29N90)			
	* A-1136-086-A	B3 BOARD COMPLETE (KV-ES29M61)			
		**********			
		<CAPACITOR>			
C302	1-117-136-11	ELECT CHIP	10MF	20%	6.3V
C305	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C306	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C309	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C310	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C312	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V
C313	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C314	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C315	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C316	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C317	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C318	1-124-779-00	ELECT CHIP	10MF	20%	16V
C319	1-126-394-11	ELECT CHIP	10MF	20%	16V
C320	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C321	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C323	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C324	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C325	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C327	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C330	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C331	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C332	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C333	1-216-295-91	SHORT	0		
C337	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C338	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C339	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C340	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C341	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C346	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C347	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C349	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C350	1-126-396-11	ELECT CHIP	47MF	20%	16V
C353	1-126-204-11	ELECT CHIP	47MF	20%	16V
C354	1-117-136-11	ELECT CHIP	10MF	20%	6.3V
C355	1-117-136-11	ELECT CHIP	10MF	20%	6.3V
C361	1-124-779-00	ELECT CHIP	10MF	20%	16V
C362	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C363	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C501	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C502	1-124-779-00	ELECT CHIP	10MF	20%	16V
C503	1-124-779-00	ELECT CHIP	10MF	20%	16V
C505	1-124-779-00	ELECT CHIP	10MF	20%	16V
C507	1-124-779-00	ELECT CHIP	10MF	20%	16V
C509	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C510	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C511	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C512	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C514	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C515	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C516	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C517	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C518	1-126-204-11	ELECT CHIP	47MF	20%	16V

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REF. NO.	PART NO.	DESCRIPTION			REMARK
C519	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C520	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C521	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C522	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C523	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C524	1-124-779-00	ELECT CHIP	10MF	20%	16V
C525	1-126-394-11	ELECT CHIP	10MF	20%	16V
C526	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C527	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C528	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C530	1-216-295-91	SHORT	0		
C532	1-216-295-91	SHORT	0		
C534	1-216-295-91	SHORT	0		
C535	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C536	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C537	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C538	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C539	1-126-204-11	ELECT CHIP	47MF	20%	16V
C540	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C542	1-126-204-11	ELECT CHIP	47MF	20%	16V
C543	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C545	1-126-396-11	ELECT CHIP	47MF	20%	16V
C546	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C548	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C549	1-126-204-11	ELECT CHIP	47MF	20%	16V
C550	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C551	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C554	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C555	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C556	1-126-392-11	ELECT CHIP	100MF	20%	6.3V
C557	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C559	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C560	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C601	1-126-394-11	ELECT CHIP	10MF	20%	16V
C602	1-126-394-11	ELECT CHIP	10MF	20%	16V
C603	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C604	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C605	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C606	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C607	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C608	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C609	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C610	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C611	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C612	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C613	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C614	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C615	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C616	1-126-396-11	ELECT CHIP	47MF	20%	16V
C617	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C618	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C619	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C620	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C621	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C622	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C623	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V

REF. NO.	PART NO.	DESCRIPTION			REMARK
C624	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C625	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C626	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C627	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C628	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C629	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C630	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C631	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C632	1-126-206-11	ELECT CHIP	100MF	20%	6.3V
C633	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C634	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C635	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C636	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C637	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C638	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C639	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C640	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C642	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C643	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C644	1-126-398-11	ELECT CHIP	4.7MF	20%	35V
C645	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C801	1-124-779-00	ELECT CHIP	10MF	20%	16V
C802	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C803	1-124-779-00	ELECT CHIP	10MF	20%	16V
C804	1-124-779-00	ELECT CHIP	10MF	20%	16V
C806	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C807	1-124-779-00	ELECT CHIP	10MF	20%	16V
C808	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C809	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C810	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C811	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C812	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C813	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C814	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C815	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C816	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C817	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C818	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C819	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C820	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C821	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C822	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C823	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C824	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C825	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C826	1-164-489-11	CERAMIC CHIP	0.22MF	10%	16V
C827	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C829	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C834	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C835	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C837	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C839	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C840	1-126-206-11	ELECT CHIP	100MF	20%	6.3V
C841	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C842	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C843	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C844	1-163-038-91	CERAMIC CHIP	0.1MF		25V

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF. NO.	PART NO.	DESCRIPTION			REMARK
C848	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C849	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C850	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C851	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C852	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C853	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C854	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C901	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C902	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C903	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C904	1-124-779-00	ELECT CHIP	10MF	20%	16V
C905	1-109-982-11	CERAMIC CHIP	1MF	10%	10V
C906	1-124-779-00	ELECT CHIP	10MF	20%	16V
C907	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C908	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C909	1-126-396-11	ELECT CHIP	47MF	20%	16V
C910	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C913	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C914	1-126-394-11	ELECT CHIP	10MF	20%	16V
C950	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C954	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
		<CONNECTOR>			
CN502	1-695-302-11	CONNECTOR, BOARD TO BOARD 50P			
		<DIODE>			
D301	8-719-041-97	DIODE MA113-(TX)			
D302	8-719-041-97	DIODE MA113-(TX)			
D501	8-719-422-12	DIODE MA8039			
D601	8-719-073-01	DIODE MA111-(K8).S0			
		<FERRITE BEAD>			
FB501	1-414-813-11	FERRITE	0UH		
FB502	1-414-813-11	FERRITE	0UH		
FB503	1-414-813-11	FERRITE	0UH		
FB504	1-414-813-11	FERRITE	0UH		
FB601	1-414-553-11	FERRITE	0UH		
FB801	1-414-553-11	FERRITE	0UH		
FB802	1-414-553-11	FERRITE	0UH		
		<FILTER>			
FL304	1-234-177-21	FILTER, CHIP EMI			
FL305	1-234-177-21	FILTER, CHIP EMI			
FL306	1-239-558-11	FILTER, CHIP EMI			
FL501	1-233-877-11	FILTER, LOW PASS			
FL502	1-233-504-21	FILTER, LOW PASS			
FL503	1-233-504-21	FILTER, LOW PASS			
FL504	1-234-177-21	FILTER, CHIP EMI			
FL505	1-234-177-21	FILTER, CHIP EMI			
FL506	1-234-177-21	FILTER, CHIP EMI			
FL508	1-234-177-21	FILTER, CHIP EMI			
FL509	1-234-177-21	FILTER, CHIP EMI			
FL510	1-234-177-21	FILTER, CHIP EMI			

REF. NO.	PART NO.	DESCRIPTION	REMARK
FL511	1-234-177-21	FILTER, CHIP EMI	
FL512	1-234-177-21	FILTER, CHIP EMI	
FL601	1-234-177-21	FILTER, CHIP EMI	
FL602	1-234-177-21	FILTER, CHIP EMI	
FL603	1-234-177-21	FILTER, CHIP EMI	
FL606	1-239-560-11	FILTER, CHIP EMI	
FL801	1-234-177-21	FILTER, CHIP EMI	
FL802	1-234-177-21	FILTER, CHIP EMI	
FL803	1-234-177-21	FILTER, CHIP EMI	
FL804	1-234-177-21	FILTER, CHIP EMI	
FL805	1-234-177-21	FILTER, CHIP EMI	
FL806	1-234-177-21	FILTER, CHIP EMI	
FL807	1-234-177-21	FILTER, CHIP EMI	
FL808	1-234-177-21	FILTER, CHIP EMI	
FL810	1-234-177-21	FILTER, CHIP EMI	
FL901	1-233-878-11	FILTER, LOW PASS	
FL902	1-233-876-11	FILTER, LOW PASS	
FL903	1-233-876-11	FILTER, LOW PASS	
FL904	1-234-177-21	FILTER, CHIP EMI	
FL905	1-234-177-21	FILTER, CHIP EMI	
FL906	1-234-177-21	FILTER, CHIP EMI	
FL907	1-234-177-21	FILTER, CHIP EMI	
		<IC>	
IC302	8-752-388-98	IC CXD2303AQ	
IC303	8-752-088-27	IC CXA3266Q-T6	
IC309	8-759-640-16	IC TC7SET04F(TE85R)	
IC311	8-759-708-05	IC NJM78L05A	
IC501	8-759-447-90	IC TLC5733AIPM	
IC504	8-759-430-32	IC TLC2933IPWR	
IC505	8-759-640-16	IC TC7SET04F(TE85R)	
IC506	8-759-640-16	IC TC7SET04F(TE85R)	
IC601	8-752-398-47	IC CXD2090Q	
IC602	8-759-567-37	IC MB81F161622B-80FN	
IC603 ⚠	8-759-295-09	IC TLC2932IPW	
IC604	8-752-072-94	IC CXA1875AM-T4	
IC801	8-759-592-40	IC CXD9509Q	
IC802	8-759-595-53	IC MB81F643242B-10FN	
IC803	8-759-460-29	IC PST9120NL	
IC901	8-752-367-59	IC CXD2309Q	
IC902	8-759-648-21	IC MB94918-APF-G-121-BND	
IC903	8-759-527-75	IC M24C04-MN6T	
IC904	8-759-349-11	IC PST9145NL	
		<COIL>	
L302	1-412-029-11	INDUCTOR CHIP 10UH	
L303	1-412-029-11	INDUCTOR CHIP 10UH	
L501	1-412-026-11	INDUCTOR CHIP 1UH	
L502	1-412-026-11	INDUCTOR CHIP 1UH	
L503	1-412-026-11	INDUCTOR CHIP 1UH	
L504	1-412-026-11	INDUCTOR CHIP 1UH	
L505	1-412-029-11	INDUCTOR CHIP 10UH	
L506	1-412-026-11	INDUCTOR CHIP 1UH	
L508	1-412-029-11	INDUCTOR CHIP 10UH	
L509	1-412-029-11	INDUCTOR CHIP 10UH	

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REF. NO.	PART NO.	DESCRIPTION			REMARK
L511	1-412-026-11	INDUCTOR CHIP	1UH		
L512	1-412-026-11	INDUCTOR CHIP	1UH		
L604	1-412-029-11	INDUCTOR CHIP	10UH		
L605	1-412-029-11	INDUCTOR CHIP	10UH		
		<TRANSISTOR>			
Q501	8-729-216-22	TRANSISTOR 2SA1162-G			
Q502	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q503	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q510	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q511	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q512	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q513	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q514	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q515	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q516	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q517	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q518	8-729-216-22	TRANSISTOR 2SA1162-G			
Q519	1-801-806-11	TRANSISTOR DTC144EKA-T146			
Q520	1-801-806-11	TRANSISTOR DTC144EKA-T146			
Q521	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q522	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q523	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q524	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q601	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q602	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q901	8-729-216-22	TRANSISTOR 2SA1162-G			
Q902	8-729-216-22	TRANSISTOR 2SA1162-G			
Q903	8-729-216-22	TRANSISTOR 2SA1162-G			
Q904	8-729-028-28	TRANSISTOR 2SK2036(TE85L)			
Q905	8-729-028-28	TRANSISTOR 2SK2036(TE85L)			
Q906	1-801-806-11	TRANSISTOR DTC144EKA-T146			
Q907	8-729-216-22	TRANSISTOR 2SA1162-G			
Q908	8-729-216-22	TRANSISTOR 2SA1162-G			
Q909	8-729-216-22	TRANSISTOR 2SA1162-G			
		<RESISTOR>			
R302	1-216-013-00	RES,CHIP	33	5%	1/10W
R303	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W
R305	1-216-049-91	RES,CHIP	1K	5%	1/10W
R306	1-216-658-11	METAL CHIP	2K	0.50%	1/10W
R309	1-216-009-91	RES,CHIP	22	5%	1/10W
R310	1-216-009-91	RES,CHIP	22	5%	1/10W
R311	1-216-009-91	RES,CHIP	22	5%	1/10W
R313	1-216-009-91	RES,CHIP	22	5%	1/10W
R316	1-216-009-91	RES,CHIP	22	5%	1/10W
R318	1-216-009-91	RES,CHIP	22	5%	1/10W
R319	1-216-049-91	RES,CHIP	1K	5%	1/10W
R321	1-216-009-91	RES,CHIP	22	5%	1/10W
R323	1-216-009-91	RES,CHIP	22	5%	1/10W
R324	1-216-009-91	RES,CHIP	22	5%	1/10W
R325	1-216-073-00	RES,CHIP	10K	5%	1/10W
R328	1-216-025-91	RES,CHIP	100	5%	1/10W
R333	1-216-295-91	SHORT	0		
R335	1-216-013-00	RES,CHIP	33	5%	1/10W

REF. NO.	PART NO.	DESCRIPTION			REMARK
R336	1-216-013-00	RES,CHIP	33	5%	1/10W
R337	1-216-097-91	RES,CHIP	100K	5%	1/10W
R338	1-216-295-91	SHORT	0		
R339	1-216-295-91	SHORT	0		
R343	1-216-295-91	SHORT	0		
R347	1-216-295-91	SHORT	0		
R350	1-216-295-91	SHORT	0		
R501	1-216-025-91	RES,CHIP	100	5%	1/10W
R502	1-216-025-91	RES,CHIP	100	5%	1/10W
R503	1-216-295-91	SHORT	0		
R504	1-216-295-91	SHORT	0		
R505	1-216-295-91	SHORT	0		
R506	1-216-009-91	RES,CHIP	22	5%	1/10W
R507	1-216-009-91	RES,CHIP	22	5%	1/10W
R508	1-216-025-91	RES,CHIP	100	5%	1/10W
R509	1-216-025-91	RES,CHIP	100	5%	1/10W
R510	1-216-043-91	RES,CHIP	560	5%	1/10W
R511	1-216-043-91	RES,CHIP	560	5%	1/10W
R512	1-216-043-91	RES,CHIP	560	5%	1/10W
R513	1-216-043-91	RES,CHIP	560	5%	1/10W
R514	1-216-043-91	RES,CHIP	560	5%	1/10W
R515	1-216-043-91	RES,CHIP	560	5%	1/10W
R516	1-216-049-91	RES,CHIP	1K	5%	1/10W
R517	1-216-049-91	RES,CHIP	1K	5%	1/10W
R518	1-216-295-91	SHORT	0		
R520	1-216-645-11	METAL CHIP	560	0.50%	1/10W
R521	1-216-295-91	SHORT	0		
R523	1-216-645-11	METAL CHIP	560	0.50%	1/10W
R524	1-216-295-91	SHORT	0		
R526	1-216-645-11	METAL CHIP	560	0.50%	1/10W
R528	1-216-037-00	RES,CHIP	330	5%	1/10W
R529	1-216-669-11	METAL CHIP	5.6K	0.50%	1/10W
R530	1-216-669-11	METAL CHIP	5.6K	0.50%	1/10W
R531	1-216-031-00	RES,CHIP	180	5%	1/10W
R532	1-216-669-11	METAL CHIP	5.6K	0.50%	1/10W
R533	1-216-031-00	RES,CHIP	180	5%	1/10W
R536	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R537	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W
R540	1-216-049-91	RES,CHIP	1K	5%	1/10W
R548	1-216-619-11	METAL CHIP	47	0.50%	1/10W
R549	1-216-619-11	METAL CHIP	47	0.50%	1/10W
R550	1-216-625-11	METAL CHIP	82	0.50%	1/10W
R551	1-216-625-11	METAL CHIP	82	0.50%	1/10W
R552	1-216-619-11	METAL CHIP	47	0.50%	1/10W
R553	1-216-295-91	SHORT	0		
R554	1-216-619-11	METAL CHIP	47	0.50%	1/10W
R555	1-216-077-91	RES,CHIP	15K	5%	1/10W
R557	1-216-049-91	RES,CHIP	1K	5%	1/10W
R558	1-216-025-91	RES,CHIP	100	5%	1/10W
R559	1-216-077-91	RES,CHIP	15K	5%	1/10W
R560	1-216-619-11	METAL CHIP	47	0.50%	1/10W
R561	1-216-043-91	RES,CHIP	560	5%	1/10W
R562	1-216-043-91	RES,CHIP	560	5%	1/10W
R563	1-216-043-91	RES,CHIP	560	5%	1/10W
R571	1-216-295-91	SHORT	0		
R572	1-216-619-11	METAL CHIP	47	0.50%	1/10W
R573	1-216-679-11	METAL CHIP	15K	0.50%	1/10W

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R574	1-216-651-11	METAL CHIP	1K	0.50%	1/10W
R575	1-216-625-11	METAL CHIP	82	0.50%	1/10W
R576	1-216-625-11	METAL CHIP	82	0.50%	1/10W
R577	1-216-619-11	METAL CHIP	47	0.50%	1/10W
R578	1-216-619-11	METAL CHIP	47	0.50%	1/10W
R579	1-216-077-91	RES,CHIP	15K	5%	1/10W
R580	1-216-295-91	SHORT	0		
R582	1-216-041-00	RES,CHIP	470	5%	1/10W
R584	1-216-041-00	RES,CHIP	470	5%	1/10W
R586	1-216-049-91	RES,CHIP	1K	5%	1/10W
R587	1-216-049-91	RES,CHIP	1K	5%	1/10W
R589	1-216-049-91	RES,CHIP	1K	5%	1/10W
R590	1-216-049-91	RES,CHIP	1K	5%	1/10W
R591	1-216-049-91	RES,CHIP	1K	5%	1/10W
R592	1-216-049-91	RES,CHIP	1K	5%	1/10W
R594	1-216-041-00	RES,CHIP	470	5%	1/10W
R596	1-216-049-91	RES,CHIP	1K	5%	1/10W
R597	1-216-073-00	RES,CHIP	10K	5%	1/10W
R598	1-216-025-91	RES,CHIP	100	5%	1/10W
R600	1-216-066-00	RES,CHIP	5.1K	5%	1/10W
R601	1-216-073-00	RES,CHIP	10K	5%	1/10W
R602	1-216-073-00	RES,CHIP	10K	5%	1/10W
R603	1-216-073-00	RES,CHIP	10K	5%	1/10W
R604	1-216-033-00	RES,CHIP	220	5%	1/10W
R605	1-216-295-91	SHORT	0		
R608	1-216-295-91	SHORT	0		
R609	1-216-073-00	RES,CHIP	10K	5%	1/10W
R610	1-216-033-00	RES,CHIP	220	5%	1/10W
R611	1-216-073-00	RES,CHIP	10K	5%	1/10W
R612	1-216-073-00	RES,CHIP	10K	5%	1/10W
R613	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R615	1-216-089-91	RES,CHIP	47K	5%	1/10W
R616	1-216-073-00	RES,CHIP	10K	5%	1/10W
R617	1-216-295-91	SHORT	0		
R619	1-216-073-00	RES,CHIP	10K	5%	1/10W
R621	1-216-295-91	SHORT	0		
R622	1-216-295-91	SHORT	0		
R623	1-216-295-91	SHORT	0		
R624	1-216-295-91	SHORT	0		
R625	1-216-295-91	SHORT	0		
R626	1-216-073-00	RES,CHIP	10K	5%	1/10W
R628	1-216-295-91	SHORT	0		
R629	1-216-073-00	RES,CHIP	10K	5%	1/10W
R631	1-216-295-91	SHORT	0		
R634	1-216-295-91	SHORT	0		
R635	1-216-295-91	SHORT	0		
R638	1-216-295-91	SHORT	0		
R639	1-216-017-91	RES,CHIP	47	5%	1/10W
R640	1-216-009-91	RES,CHIP	22	5%	1/10W
R642	1-216-295-91	SHORT	0		
R643	1-216-295-91	SHORT	0		
R645	1-216-295-91	SHORT	0		
R651	1-216-295-91	SHORT	0		
R653	1-216-025-91	RES,CHIP	100	5%	1/10W
R654	1-216-033-00	RES,CHIP	220	5%	1/10W
R655	1-216-295-91	SHORT	0		
R657	1-216-009-91	RES,CHIP	22	5%	1/10W
R658	1-216-049-91	RES,CHIP	1K	5%	1/10W
R659	1-216-025-91	RES,CHIP	100	5%	1/10W
R660	1-216-025-91	RES,CHIP	100	5%	1/10W
R661	1-216-025-91	RES,CHIP	100	5%	1/10W
R664	1-216-009-91	RES,CHIP	22	5%	1/10W
R665	1-216-035-00	RES,CHIP	270	5%	1/10W
R666	1-216-646-11	METAL CHIP	620	0.50%	1/10W
R667	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W
R668	1-216-009-91	RES,CHIP	22	5%	1/10W
R670	1-216-295-91	SHORT	0		
R671	1-216-073-00	RES,CHIP	10K	5%	1/10W
R672	1-216-073-00	RES,CHIP	10K	5%	1/10W
R673	1-216-073-00	RES,CHIP	10K	5%	1/10W
R674	1-216-073-00	RES,CHIP	10K	5%	1/10W
R675	1-216-073-00	RES,CHIP	10K	5%	1/10W
R676	1-216-073-00	RES,CHIP	10K	5%	1/10W
R677	1-216-073-00	RES,CHIP	10K	5%	1/10W
R678	1-216-073-00	RES,CHIP	10K	5%	1/10W
R679	1-216-073-00	RES,CHIP	10K	5%	1/10W
R680	1-216-073-00	RES,CHIP	10K	5%	1/10W
R681	1-216-073-00	RES,CHIP	10K	5%	1/10W
R682	1-216-073-00	RES,CHIP	10K	5%	1/10W
R683	1-216-073-00	RES,CHIP	10K	5%	1/10W
R684	1-216-073-00	RES,CHIP	10K	5%	1/10W
R685	1-216-073-00	RES,CHIP	10K	5%	1/10W
R686	1-216-073-00	RES,CHIP	10K	5%	1/10W
R687	1-216-295-91	SHORT	0		
R688	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R689	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R690	1-216-295-91	SHORT	0		
R691	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R692	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R693	1-216-009-91	RES,CHIP	22	5%	1/10W
R694	1-216-295-91	SHORT	0		
R695	1-216-047-91	RES,CHIP	820	5%	1/10W
R696	1-216-049-91	RES,CHIP	1K	5%	1/10W
R697	1-216-117-00	RES,CHIP	680K	5%	1/10W
R698	1-216-117-00	RES,CHIP	680K	5%	1/10W
R699	1-216-295-91	SHORT	0		
R801	1-216-009-91	RES,CHIP	22	5%	1/10W
R802	1-216-009-91	RES,CHIP	22	5%	1/10W
R804	1-216-073-00	RES,CHIP	10K	5%	1/10W
R806	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R807	1-216-637-11	METAL CHIP	270	0.50%	1/10W
R812	1-216-073-00	RES,CHIP	10K	5%	1/10W
R813	1-216-295-91	SHORT	0		
R814	1-216-073-00	RES,CHIP	10K	5%	1/10W
R815	1-216-073-00	RES,CHIP	10K	5%	1/10W
R816	1-216-073-00	RES,CHIP	10K	5%	1/10W
R817	1-216-613-11	METAL CHIP	27	0.50%	1/10W
R818	1-216-295-91	SHORT	0		
R820	1-216-651-11	METAL CHIP	1K	0.50%	1/10W
R822	1-216-295-91	SHORT	0		
R823	1-216-073-00	RES,CHIP	10K	5%	1/10W
R824	1-216-073-00	RES,CHIP	10K	5%	1/10W
R825	1-216-621-11	METAL CHIP	56	0.50%	1/10W
R826	1-216-641-11	METAL CHIP	390	0.50%	1/10W
R827	1-216-607-11	METAL CHIP	15	0.50%	1/10W

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R834	1-216-629-11	METAL CHIP	120	0.50%	1/10W
R835	1-216-623-11	METAL CHIP	68	0.50%	1/10W
R836	1-216-611-11	METAL CHIP	22	0.50%	1/10W
R840	1-216-295-91	SHORT	0		
R844	1-216-009-91	RES,CHIP	22	5%	1/10W
R845	1-216-009-91	RES,CHIP	22	5%	1/10W
R846	1-216-009-91	RES,CHIP	22	5%	1/10W
R847	1-216-009-91	RES,CHIP	22	5%	1/10W
R848	1-216-009-91	RES,CHIP	22	5%	1/10W
R849	1-216-009-91	RES,CHIP	22	5%	1/10W
R850	1-216-009-91	RES,CHIP	22	5%	1/10W
R851	1-216-009-91	RES,CHIP	22	5%	1/10W
R852	1-216-009-91	RES,CHIP	22	5%	1/10W
R853	1-216-009-91	RES,CHIP	22	5%	1/10W
R854	1-216-009-91	RES,CHIP	22	5%	1/10W
R855	1-216-009-91	RES,CHIP	22	5%	1/10W
R856	1-216-009-91	RES,CHIP	22	5%	1/10W
R857	1-216-009-91	RES,CHIP	22	5%	1/10W
R858	1-216-009-91	RES,CHIP	22	5%	1/10W
R859	1-216-009-91	RES,CHIP	22	5%	1/10W
R860	1-216-009-91	RES,CHIP	22	5%	1/10W
R861	1-216-009-91	RES,CHIP	22	5%	1/10W
R862	1-216-009-91	RES,CHIP	22	5%	1/10W
R863	1-216-009-91	RES,CHIP	22	5%	1/10W
R864	1-216-009-91	RES,CHIP	22	5%	1/10W
R865	1-216-009-91	RES,CHIP	22	5%	1/10W
R866	1-216-009-91	RES,CHIP	22	5%	1/10W
R867	1-216-009-91	RES,CHIP	22	5%	1/10W
R868	1-216-009-91	RES,CHIP	22	5%	1/10W
R869	1-216-009-91	RES,CHIP	22	5%	1/10W
R870	1-216-009-91	RES,CHIP	22	5%	1/10W
R871	1-216-009-91	RES,CHIP	22	5%	1/10W
R872	1-216-009-91	RES,CHIP	22	5%	1/10W
R873	1-216-009-91	RES,CHIP	22	5%	1/10W
R874	1-216-009-91	RES,CHIP	22	5%	1/10W
R875	1-216-009-91	RES,CHIP	22	5%	1/10W
R876	1-216-009-91	RES,CHIP	22	5%	1/10W
R877	1-216-009-91	RES,CHIP	22	5%	1/10W
R878	1-216-009-91	RES,CHIP	22	5%	1/10W
R879	1-216-009-91	RES,CHIP	22	5%	1/10W
R880	1-216-009-91	RES,CHIP	22	5%	1/10W
R881	1-216-009-91	RES,CHIP	22	5%	1/10W
R882	1-216-009-91	RES,CHIP	22	5%	1/10W
R883	1-216-009-91	RES,CHIP	22	5%	1/10W
R884	1-216-009-91	RES,CHIP	22	5%	1/10W
R885	1-216-009-91	RES,CHIP	22	5%	1/10W
R886	1-216-009-91	RES,CHIP	22	5%	1/10W
R887	1-216-009-91	RES,CHIP	22	5%	1/10W
R888	1-216-009-91	RES,CHIP	22	5%	1/10W
R889	1-216-009-91	RES,CHIP	22	5%	1/10W
R890	1-216-009-91	RES,CHIP	22	5%	1/10W
R891	1-216-009-91	RES,CHIP	22	5%	1/10W
R892	1-216-009-91	RES,CHIP	22	5%	1/10W
R893	1-216-009-91	RES,CHIP	22	5%	1/10W
R894	1-216-009-91	RES,CHIP	22	5%	1/10W
R895	1-216-009-91	RES,CHIP	22	5%	1/10W
R896	1-216-009-91	RES,CHIP	22	5%	1/10W
R897	1-216-009-91	RES,CHIP	22	5%	1/10W

REF. NO.	PART NO.	DESCRIPTION			REMARK
R898	1-216-009-91	RES,CHIP	22	5%	1/10W
R899	1-216-073-00	RES,CHIP	10K	5%	1/10W
R901	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R902	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W
R903	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W
R904	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R905	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R906	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R907	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R908	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R909	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R910	1-216-049-91	RES,CHIP	1K	5%	1/10W
R911	1-216-049-91	RES,CHIP	1K	5%	1/10W
R912	1-216-049-91	RES,CHIP	1K	5%	1/10W
R914	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R916	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R923	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R926	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R927	1-216-295-91	SHORT	0		
R929	1-216-025-91	RES,CHIP	100	5%	1/10W
R930	1-216-025-91	RES,CHIP	100	5%	1/10W
R931	1-216-041-00	RES,CHIP	470	5%	1/10W
R933	1-216-025-91	RES,CHIP	100	5%	1/10W
R934	1-216-025-91	RES,CHIP	100	5%	1/10W
R935	1-216-073-00	RES,CHIP	10K	5%	1/10W
R936	1-216-041-00	RES,CHIP	470	5%	1/10W
R937	1-216-025-91	RES,CHIP	100	5%	1/10W
R938	1-216-025-91	RES,CHIP	100	5%	1/10W
R939	1-216-295-91	SHORT	0		
R940	1-216-295-91	SHORT	0		
R941	1-216-295-91	SHORT	0		
R942	1-216-037-00	RES,CHIP	330	5%	1/10W
R943	1-216-033-00	RES,CHIP	220	5%	1/10W
R944	1-216-295-91	SHORT	0		
R945	1-216-295-91	SHORT	0		
R951	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R952	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R953	1-216-295-91	SHORT	0		
R954	1-216-295-91	SHORT	0		
R955	1-216-295-91	SHORT	0		
R956	1-216-089-91	RES,CHIP	47K	5%	1/10W
R957	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R958	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R959	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R960	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R961	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R962	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R979	1-216-295-91	SHORT	0		
R981	1-216-037-00	RES,CHIP	330	5%	1/10W
R982	1-216-037-00	RES,CHIP	330	5%	1/10W
R983	1-216-089-91	RES,CHIP	47K	5%	1/10W
R984	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R985	1-216-113-00	RES,CHIP	470K	5%	1/10W
R986	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R987	1-216-049-91	RES,CHIP	1K	5%	1/10W
R988	1-216-033-00	RES,CHIP	220	5%	1/10W
R989	1-216-081-00	RES,CHIP	22K	5%	1/10W
R990	1-216-113-00	RES,CHIP	470K	5%	1/10W

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R991	1-216-295-91	SHORT	0		
R993	1-216-089-91	RES,CHIP	47K	5%	1/10W
R994	1-216-033-00	RES,CHIP	220	5%	1/10W
R995	1-216-033-00	RES,CHIP	220	5%	1/10W
R996	1-216-037-00	RES,CHIP	330	5%	1/10W
R997	1-216-037-00	RES,CHIP	330	5%	1/10W
R998	1-216-073-00	RES,CHIP	10K	5%	1/10W
R2801	1-216-629-11	METAL CHIP	120	0.50%	1/10W
R2802	1-216-623-11	METAL CHIP	68	0.50%	1/10W
R2803	1-216-603-11	METAL CHIP	10	0.50%	1/10W
R2804	1-216-627-11	METAL CHIP	100	0.50%	1/10W
R2805	1-216-623-11	METAL CHIP	68	0.50%	1/10W
R2806	1-216-611-11	METAL CHIP	22	0.50%	1/10W
R2809	1-216-295-91	SHORT	0		
R2810	1-216-295-91	SHORT	0		
R2813	1-216-295-91	SHORT	0		
R2815	1-216-295-91	SHORT	0		
R2817	1-216-295-91	SHORT	0		
R2818	1-216-295-91	SHORT	0		
R2820	1-216-295-91	SHORT	0		
R2822	1-216-295-91	SHORT	0		
RB001	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB002	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB003	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB004	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB005	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB006	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB007	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
RB008	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
RB009	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
RB010	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
RB011	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
RB012	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
RB013	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
RB014	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
RB015	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
RB016	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
RB017	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
RB018	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
RB019	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB020	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB021	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB022	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB023	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB024	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB025	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB026	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB027	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
RB301	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
RB302	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
RB701	1-239-711-91	NETWORK RESISTOR (CHIP) 0			
RB702	1-239-711-91	NETWORK RESISTOR (CHIP) 0			
RB703	1-239-711-91	NETWORK RESISTOR (CHIP) 0			
RB704	1-239-711-91	NETWORK RESISTOR (CHIP) 0			
RB705	1-239-711-91	NETWORK RESISTOR (CHIP) 0			
RB706	1-239-711-91	NETWORK RESISTOR (CHIP) 0			

REF. NO.	PART NO.	DESCRIPTION			REMARK
		<CRYSTAL>			
X801	1-781-649-21	OSCILLATOR, CRYSTAL			
X802	1-781-650-21	VIBRATOR, CRYSTAL			
X901	1-760-014-11	VIBRATOR, CERAMIC			
**********					
*	A-1136-069-A	BC4 BOARD COMPLETE			
		**********			
		<CAPACITOR>			
C2003	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C2005	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C2006	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C2010	1-163-102-00	CERAMIC CHIP	24PF	5%	50V
C2011	1-163-102-00	CERAMIC CHIP	24PF	5%	50V
C2015	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2016	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2017	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2018	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2021	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C2024	1-216-295-91	SHORT	0		
C2029	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2030	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2031	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2032	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2033	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2034	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2035	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2036	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2037	1-104-664-11	ELECT	47MF	20%	16V
C2038	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2039	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2040	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2041	1-126-924-11	ELECT	330MF	20%	6.3V
C2042	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2044	1-104-664-11	ELECT	47MF	20%	16V
C2045	1-163-106-00	CERAMIC CHIP	36PF	5%	50V
C2046	1-126-964-11	ELECT	10MF	20%	50V
C2047	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C2048	1-126-964-11	ELECT	10MF	20%	50V
C2049	1-126-960-11	ELECT	1MF	20%	50V
C2050	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C2051	1-126-964-11	ELECT	10MF	20%	50V
C2052	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C2053	1-126-960-11	ELECT	1MF	20%	50V
C2054	1-104-664-11	ELECT	47MF	20%	16V
C2055	1-104-664-11	ELECT	47MF	20%	16V
C2056	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C2057	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C2058	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C2059	1-104-664-11	ELECT	47MF	20%	16V
C2060	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C2061	1-163-031-11	CERAMIC CHIP	0.01MF		50V

BC4

REF. NO.	PART NO.	DESCRIPTION			REMARK
C2062	1-104-664-11	ELECT	47MF	20%	16V
C2063	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2064	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C2065	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C2066	1-104-664-11	ELECT	47MF	20%	16V
C2067	1-104-664-11	ELECT	47MF	20%	16V
C2068	1-104-664-11	ELECT	47MF	20%	16V
C2069	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C2070	1-104-664-11	ELECT	47MF	20%	16V
C2071	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C2072	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C2074	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C2075	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C2078	1-104-664-11	ELECT	47MF	20%	16V
C2079	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C2080	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C2095	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C2096	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C2097	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
		<CONNECTOR>			
CN2001*	1-793-685-11	PIN, CONNECTOR (PC BOARD) 15P			
		<FERRITE BEAD>			
FB2002	1-414-234-22	INDUCTOR CHIP	0UH		
FB2008	1-414-234-22	INDUCTOR CHIP	0UH		
FB2009	1-414-234-22	INDUCTOR CHIP	0UH		
FB2010	1-414-234-22	INDUCTOR CHIP	0UH		
FB2011	1-414-234-22	INDUCTOR CHIP	0UH		
FB2012	1-414-234-22	INDUCTOR CHIP	0UH		
FB2014	1-414-234-22	INDUCTOR CHIP	0UH		
FB2015	1-414-234-22	INDUCTOR CHIP	0UH		
FB2016	1-414-234-22	INDUCTOR CHIP	0UH		
FB2017	1-414-234-22	INDUCTOR CHIP	0UH		
		<FILTER>			
FL2001	1-239-848-11	FILTER, LOW PASS			
FL2002	1-239-848-11	FILTER, LOW PASS			
FL2003	1-239-848-11	FILTER, LOW PASS			
FL2004	1-239-848-11	FILTER, LOW PASS			
FL2005	1-233-512-21	FERRITE	37UH		
FL2006	1-233-512-21	FERRITE	37UH		
FL2007	1-233-512-21	FERRITE	37UH		
		<IC>			
IC2003	8-759-568-27	IC MSM514265C-60JSDR1			
IC2004	8-759-594-44	IC UPD64082GF-3BA			
IC2005	8-759-431-14	IC PQ3TZ53U			
		<COIL>			
L2001	1-410-200-31	INDUCTOR CHIP	4.7UH		
L2004	1-412-058-11	INDUCTOR CHIP	10UH		
L2005	1-412-058-11	INDUCTOR CHIP	10UH		
L2006	1-412-058-11	INDUCTOR CHIP	10UH		
L2007	1-412-058-11	INDUCTOR CHIP	10UH		
L2008	1-412-058-11	INDUCTOR CHIP	10UH		
		<TRANSISTOR>			
Q2002	8-729-216-22	TRANSISTOR 2SA1162-G			
Q2003	8-729-216-22	TRANSISTOR 2SA1162-G			
Q2004	8-729-216-22	TRANSISTOR 2SA1162-G			
Q2005	8-729-422-33	TRANSISTOR 2SD601A-Q-TX			
Q2006	8-729-422-33	TRANSISTOR 2SD601A-Q-TX			
Q2007	8-729-422-33	TRANSISTOR 2SD601A-Q-TX			
Q2008	8-729-422-33	TRANSISTOR 2SD601A-Q-TX			
Q2009	8-729-422-33	TRANSISTOR 2SD601A-Q-TX			
Q2010	8-729-422-33	TRANSISTOR 2SD601A-Q-TX			
Q2011	8-729-422-33	TRANSISTOR 2SD601A-Q-TX			
Q2012	8-729-216-22	TRANSISTOR 2SA1162-G			
Q2013	8-729-216-22	TRANSISTOR 2SA1162-G			
Q2014	8-729-422-33	TRANSISTOR 2SD601A-Q-TX			
Q2015	8-729-422-33	TRANSISTOR 2SD601A-Q-TX			
Q2016	8-729-422-33	TRANSISTOR 2SD601A-Q-TX			
Q2018	8-729-216-22	TRANSISTOR 2SA1162-G			
Q2019	8-729-422-33	TRANSISTOR 2SD601A-Q-TX			
		<RESISTOR>			
R2011	1-216-041-00	RES,CHIP	470	5%	1/10W
R2015	1-216-041-00	RES,CHIP	470	5%	1/10W
R2019	1-216-295-91	SHORT	0		
R2021	1-216-025-91	RES,CHIP	100	5%	1/10W
R2027	1-216-049-91	RES,CHIP	1K	5%	1/10W
R2028	1-216-049-91	RES,CHIP	1K	5%	1/10W
R2029	1-216-043-91	RES,CHIP	560	5%	1/10W
R2030	1-216-043-91	RES,CHIP	560	5%	1/10W
R2031	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R2032	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R2033	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R2034	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R2035	1-216-043-91	RES,CHIP	560	5%	1/10W
R2036	1-216-649-11	METAL CHIP	820	0.50%	1/10W
R2037	1-216-044-00	RES,CHIP	620	5%	1/10W
R2039	1-216-047-91	RES,CHIP	820	5%	1/10W
R2040	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R2041	1-216-047-91	RES,CHIP	820	5%	1/10W
R2042	1-216-075-00	RES,CHIP	12K	5%	1/10W
R2043	1-216-085-00	RES,CHIP	33K	5%	1/10W
R2044	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R2046	1-216-075-00	RES,CHIP	12K	5%	1/10W
R2047	1-216-085-00	RES,CHIP	33K	5%	1/10W
R2048	1-216-049-91	RES,CHIP	1K	5%	1/10W
R2049	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R2050	1-216-017-91	RES,CHIP	47	5%	1/10W
R2051	1-216-049-91	RES,CHIP	1K	5%	1/10W
R2052	1-216-049-91	RES,CHIP	1K	5%	1/10W
R2053	1-216-041-00	RES,CHIP	470	5%	1/10W
R2054	1-216-041-00	RES,CHIP	470	5%	1/10W

BC4 C

REF. NO.	PART NO.	DESCRIPTION			REMARK
R2055	1-216-017-91	RES,CHIP	47	5%	1/10W
R2056	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R2057	1-216-049-91	RES,CHIP	1K	5%	1/10W
R2058	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R2059	1-216-049-91	RES,CHIP	1K	5%	1/10W
R2060	1-216-025-91	RES,CHIP	100	5%	1/10W
R2061	1-216-043-91	RES,CHIP	560	5%	1/10W
R2062	1-216-105-91	RES,CHIP	220K	5%	1/10W
R2063	1-216-089-91	RES,CHIP	47K	5%	1/10W
R2064	1-216-049-91	RES,CHIP	1K	5%	1/10W
R2066	1-216-033-00	RES,CHIP	220	5%	1/10W
R2067	1-216-043-91	RES,CHIP	560	5%	1/10W
R2069	1-216-645-11	METAL CHIP	560	0.50%	1/10W
R2070	1-216-641-11	METAL CHIP	390	0.50%	1/10W
R2071	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R2072	1-216-043-91	RES,CHIP	560	5%	1/10W
R2073	1-216-049-91	RES,CHIP	1K	5%	1/10W
R2074	1-216-025-91	RES,CHIP	100	5%	1/10W
R2075	1-216-295-91	SHORT	0		
R2076	1-216-025-91	RES,CHIP	100	5%	1/10W
R2077	1-216-025-91	RES,CHIP	100	5%	1/10W
R2078	1-216-295-91	SHORT	0		
R2092	1-216-055-00	RES,CHIP	1.8K	5%	1/10W
R2093	1-216-055-00	RES,CHIP	1.8K	5%	1/10W
R2104	1-216-295-91	SHORT	0		
R2105	1-216-295-91	SHORT	0		
R2106	1-216-295-91	SHORT	0		
R2107	1-216-295-91	SHORT	0		
R2108	1-216-049-91	RES,CHIP	1K	5%	1/10W
R2110	1-216-295-91	SHORT	0		
R2112	1-216-295-91	SHORT	0		
R2113	1-216-017-91	RES,CHIP	47	5%	1/10W
R2115	1-216-049-91	RES,CHIP	1K	5%	1/10W
R2116	1-216-295-91	SHORT	0		
R2117	1-216-295-91	SHORT	0		
R2118	1-216-296-91	SHORT	0		
R2119	1-216-296-91	SHORT	0		
R2200	1-216-296-91	SHORT	0		
		<VARIABLE RESISTOR>			
RV2001	1-223-271-21	RES, ADJ, CERMET 220			
		<CRYSTAL>			
X2001	1-767-606-11	VIBRATOR, CRYSTAL			

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REF. NO.	PART NO.	DESCRIPTION			REMARK
*	A-1332-005-A	C BOARD MOUNTED (KV-ES29N90)			
*	A-1332-034-A	C BOARD MOUNTED (KV-ES29M61)			
		**********			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
		<CAPACITOR>			
C9002	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V
C9003	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V
C9004	1-162-114-00	CERAMIC	0.0047MF		2KV
C9005	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V
C9006	1-163-091-00	CERAMIC CHIP	8PF	0.25PF	50V
C9007	1-163-091-00	CERAMIC CHIP	8PF	0.25PF	50V
C9008	1-163-091-00	CERAMIC CHIP	8PF	0.25PF	50V
C9009	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V
C9010	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V
C9011	1-136-207-11	MYLAR	0.047MF	10%	250V
C9012	1-136-207-11	MYLAR	0.047MF	10%	250V
C9014	1-136-207-11	MYLAR	0.047MF	10%	250V
C9015	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V
C9018	1-107-961-91	ELECT	10MF	20%	250V
C9019	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C9020	1-107-961-91	ELECT	10MF	20%	250V
C9021	1-107-961-91	ELECT	10MF	20%	250V
C9022	1-101-004-00	CERAMIC	0.01MF		50V
C9023	1-101-004-00	CERAMIC	0.01MF		50V
C9024	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C9025	1-104-653-11	ELECT	220MF	20%	16V
C9026	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C9027	1-101-004-00	CERAMIC	0.01MF		50V
C9028	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C9029	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C9030	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C9031	1-162-114-00	CERAMIC	0.0047MF		2KV
C9032	1-162-116-00	CERAMIC	680PF	10%	2KV
C9033	1-107-662-11	ELECT	22MF	20%	250V
C9035	1-162-114-00	CERAMIC	0.0047MF		2KV
C9042	1-126-940-11	ELECT	330MF	20%	25V
		<CONNECTOR>			
CN9001*	1-564-512-11	PLUG, CONNECTOR 9P			
CN9002	1-691-765-11	PLUG (MICRO CONNECTOR) 3P			
CN9003	1-695-915-11	TAB (CONTACT)			
CN9004	1-695-915-11	TAB (CONTACT)			
CN9005*	1-564-506-11	PLUG, CONNECTOR 3P			
CN9007	1-785-879-11	CONNECTOR, ONE TOUCH			
		<DIODE>			
D9002	8-719-400-75	DIODE MA3091			
D9005	8-719-073-01	DIODE MA111-(K8).S0			
D9005	8-719-988-61	DIODE 1SS355TE-17			
D9006	8-719-051-85	DIODE HSS83TD			
D9007	8-719-051-85	DIODE HSS83TD			

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF. NO.	PART NO.	DESCRIPTION			REMARK
D9008	8-719-051-85	DIODE HSS83TD			
D9009	8-719-908-03	DIODE GP08D			
D9010	8-719-110-17	DIODE RD10ESB2			
		<IC>			
IC9001	8-759-360-83	IC TDA6111Q/N4			
IC9002	8-759-360-83	IC TDA6111Q/N4			
IC9003	8-759-360-83	IC TDA6111Q/N4			
		<JACK>			
J9001 ⚠	1-540-071-22	SOCKET, CRT			
		<COIL>			
L9001	1-414-158-11	INDUCTOR	2.2UH		
L9002	1-408-591-11	INDUCTOR	1UH		
L9003	1-408-591-11	INDUCTOR	1UH		
L9004	1-408-591-11	INDUCTOR	1UH		
L9005	1-406-666-21	INDUCTOR	150UH		
L9006	1-412-526-11	INDUCTOR	12UH		
		<NEON LAMP>			
NL9001	1-519-526-11	LAMP, NEON			
		<TRANSISTOR>			
Q9001	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q9009	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q9010	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q9011	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
		<RESISTOR>			
R9001	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
R9006	1-216-073-00	RES,CHIP	10K	5%	1/10W
R9007	1-208-789-11	METAL CHIP	2K	0.50%	1/10W
R9008	1-216-085-00	RES,CHIP	33K	5%	1/10W
R9012	1-216-049-91	RES,CHIP	1K	5%	1/10W
R9013	1-216-049-91	RES,CHIP	1K	5%	1/10W
R9018	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
R9019	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
R9021	1-216-295-91	SHORT	0		
R9023	1-216-295-91	SHORT	0		
R9026	1-208-789-11	METAL CHIP	2K	0.50%	1/10W
R9031	1-208-789-11	METAL CHIP	2K	0.50%	1/10W
R9033	1-208-808-11	METAL CHIP	12K	0.50%	1/10W
R9034	1-208-800-11	METAL CHIP	5.6K	0.50%	1/10W
R9035	1-208-790-11	METAL CHIP	2.2K	0.50%	1/10W
R9036	1-216-049-91	RES,CHIP	1K	5%	1/10W
R9037	1-240-233-71	METAL OXIDE	100	5%	3W
R9038	1-208-790-11	METAL CHIP	2.2K	0.50%	1/10W
R9039	1-208-790-11	METAL CHIP	2.2K	0.50%	1/10W
R9041	1-216-049-91	RES,CHIP	1K	5%	1/10W
R9042	1-216-049-91	RES,CHIP	1K	5%	1/10W
R9043	1-240-233-71	METAL OXIDE	100	5%	3W
R9044	1-240-233-71	METAL OXIDE	100	5%	3W

REF. NO.	PART NO.	DESCRIPTION			REMARK
R9047	1-202-557-00	SOLID	220	20%	1/2W
R9048	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R9049	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R9050	1-249-424-11	CARBON	3.9K	5%	1/4W
R9051	1-202-557-00	SOLID	220	20%	1/2W
R9052	1-202-557-00	SOLID	220	20%	1/2W
R9053	1-249-424-11	CARBON	3.9K	5%	1/4W
R9054	1-249-424-11	CARBON	3.9K	5%	1/4W
R9055	1-202-884-11	SOLID	820K	20%	1/2W
R9056	1-202-813-00	SOLID	22K	10%	1/2W
R9057	1-202-847-00	SOLID	560K	20%	1/2W
R9058	1-202-884-11	SOLID	820K	20%	1/2W
R9059	1-202-818-00	SOLID	1K	20%	1/2W
R9061	1-202-549-00	SOLID	100	20%	1/2W
R9065	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R9068	1-216-101-00	RES,CHIP	150K	5%	1/10W
R9069	1-202-549-00	SOLID	100	20%	1/2W
R9070	1-216-037-00	RES,CHIP	330	5%	1/10W
R9071	1-216-037-00	RES,CHIP	330	5%	1/10W
R9072	1-216-037-00	RES,CHIP	330	5%	1/10W
R9073	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
		<VARIABLE RESISTOR>			
RV9001	1-241-714-11	RES, ADJ, METAL FILM 110M			
RV9002	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M			
**********					
*	A-1346-914-A	D BOARD COMPLETE (KV-ES29N90)			
*	A-1346-919-A	D BOARD COMPLETE (KV-ES29M61)			
		**********			
*	4-363-146-00	HEAT SINK, V.OUT			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
	4-382-854-21	SCREW (M3X14), P, SW (+)			
		<CAPACITOR>			
C6601	1-104-665-11	ELECT	100MF	20%	25V
C6602	1-130-202-00	FILM (KV-ES29N90)	0.022MF	5%	400V
C6602	1-129-720-00	FILM (KV-ES29M61)	0.033MF	5%	630V
C6604	1-126-967-11	ELECT	47MF	20%	50V
C6606	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C6607 ⚠	1-119-886-51	CERAMIC	470PF	10%	250V
C6608 ⚠	1-119-886-51	CERAMIC (KV-ES29M61)	470PF	10%	250V
C6608 ⚠	1-119-892-51	CERAMIC (KV-ES29N90)	470PF	10%	250V
C6609	1-136-177-00	MYLAR	1MF	5%	50V
C6610	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C6611	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V
C6612	1-126-964-11	ELECT	10MF	20%	50V
C6613	1-161-830-00	CERAMIC	0.0047MF	99%	500V
C6614	1-161-830-00	CERAMIC	0.0047MF		500V
C6615	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C6616	1-163-251-11	CERAMIC CHIP	100PF	5%	50V

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REF. NO.	PART NO.	DESCRIPTION			REMARK
C6617	1-161-830-00	CERAMIC	0.0047MF		500V
C6618	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C6619	1-161-830-00	CERAMIC	0.0047MF	99%	500V
C6620	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C6621	1-131-940-11	ELECT	1200MF	20%	250V
C6622	1-131-940-11	ELECT	1200MF	20%	250V
C6624	1-126-933-11	ELECT	100MF	20%	16V
C6625	1-129-718-00	FILM	0.022MF	5%	630V
C6626	1-130-029-00	FILM	8200PF	2%	50V
C6627	1-102-129-00	CERAMIC	0.01MF	10%	50V
C6628	1-104-330-91	CERAMIC	470PF	10%	1KV
C6630	1-107-680-91	ELECT	22MF	20%	450V
C6631	1-126-964-11	ELECT	10MF	20%	50V
C6632	1-126-963-11	ELECT	4.7MF	20%	50V
C6633	1-126-967-11	ELECT	47MF	20%	50V
C6634	1-126-968-11	ELECT	100MF	20%	50V
C6635	1-102-973-00	CERAMIC	100PF	5%	50V
C6637	1-109-879-11	CERAMIC	22PF	5%	2KV
C6638	1-126-964-11	ELECT	10MF	20%	50V
C6639	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V
C6640	1-104-330-91	CERAMIC	470PF	10%	1KV
C6641	1-104-341-11	MYLAR	0.1MF	10%	250V
C6642	1-126-964-11	ELECT	10MF	20%	50V
C6643	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V
C6648	1-126-941-11	ELECT	470MF	20%	25V
C6649	1-104-665-11	ELECT	100MF	20%	25V
C6650	1-162-115-00	CERAMIC	330PF	10%	1KV
C6651	1-162-115-00	CERAMIC	330PF	10%	1KV
C6652	1-110-626-11	ELECT	330MF	20%	160V
C6653	1-137-368-11	MYLAR	0.0047MF	5%	50V
C6654	1-126-936-11	ELECT	3300MF	20%	16V
C6655	1-126-942-61	ELECT	1000MF	20%	25V
C6656	1-136-165-00	MYLAR	0.1MF	5%	50V
C6658	1-126-944-11	ELECT	3300MF	20%	25V
C6659	1-126-944-11	ELECT	3300MF	20%	25V
C6660	1-126-960-11	ELECT	1MF	20%	50V
C6661	1-104-664-11	ELECT	47MF	20%	16V
C6662	1-104-664-11	ELECT	47MF	20%	16V
C6663	1-102-129-00	CERAMIC	0.01MF	10%	50V
C6664	1-102-129-00	CERAMIC	0.01MF	10%	50V
C6665	1-126-964-11	ELECT	10MF	20%	50V
C6666	1-137-370-11	MYLAR	0.01MF	5%	50V
C6668	1-104-664-11	ELECT	47MF	20%	25V
C6669	1-162-115-00	CERAMIC	330PF	10%	1KV
C6670	1-162-115-00	CERAMIC	330PF	10%	1KV
C6671	1-129-718-00	FILM	0.022MF	5%	630V
C6672	1-104-331-11	CERAMIC	0.0022MF	10%	1KV
C6673	1-104-331-11	CERAMIC	0.0022MF	10%	1KV
C6674	1-128-527-11	ELECT	330MF	20%	25V
C6677	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C6679	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C6680	1-136-157-00	MYLAR	0.022MF	5%	50V
C6800	1-126-964-11	ELECT	10MF	20%	50V
C6801	1-126-960-11	ELECT	1MF	20%	50V
C6802	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C6803	1-102-129-00	CERAMIC	0.01MF	10%	50V
C6804	1-102-129-00	CERAMIC	0.01MF	10%	50V
C6805	1-111-087-11	ELECT	330MF	20%	25V
C6806	1-107-933-11	ELECT	100MF	20%	100V
C6808	1-106-228-00	MYLAR	0.22MF	10%	100V
C6809	1-102-074-00	CERAMIC	0.001MF	10%	50V
C6810	1-106-220-00	MYLAR	0.1MF	10%	100V
C6811	1-111-087-11	ELECT	330MF	20%	25V
C6812	1-130-785-11	MYLAR	0.47MF	10%	100V
C6813	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C6814	1-115-565-11	CERAMIC CHIP	2.2MF	10%	10V
C6815	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C6816	1-136-207-11	MYLAR	0.047MF	5%	400V
C6817	1-126-967-11	ELECT	47MF	20%	50V
C6818	1-126-960-11	ELECT	1MF	20%	50V
C6819	1-126-960-11	ELECT	1MF	20%	50V
C6820	1-102-114-00	CERAMIC	470PF	10%	50V
C6821	1-106-383-00	MYLAR	0.047MF	10%	200V
C6822	1-102-114-00	CERAMIC	470PF	10%	50V
C6823	1-106-383-00	MYLAR	0.047MF	10%	200V
C6826	1-102-030-00	CERAMIC	330PF	10%	500V
C6827	1-102-030-00	CERAMIC	330PF	10%	500V
C6828	1-106-343-00	MYLAR	0.001MF	10%	200V
C6829	1-162-558-11	CERAMIC	100PF	10%	2KV
C6831	1-117-835-21	FILM	6200PF	3%	1.5KV
C6832	1-117-836-21	FILM	6800PF	3%	1.5KV
C6833	1-136-287-11	FILM	0.0047MF	5%	100V
C6834	1-125-893-11	FILM	680PF	3%	1.5KV
C6835	1-125-893-11	FILM	680PF	3%	1.5KV
C6836	1-137-150-11	FILM	0.01MF	5%	100V
C6837	1-125-893-11	FILM	680PF	3%	1.5KV
C6838	1-125-893-11	FILM	680PF	3%	1.5KV
C6839	1-126-933-11	ELECT	100MF	20%	16V
C6840	1-126-933-11	ELECT	100MF	20%	16V
C6841	1-117-660-81	FILM	0.12MF	5%	250V
C6842	1-117-667-81	FILM	0.47MF	5%	250V
C6843	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C6844	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C6845	1-115-514-11	FILM	0.22MF	5%	250V
C6846	1-109-945-11	FILM	0.18MF	5%	250V
C6848	1-107-846-11	FILM	0.1MF	5%	250V
C6849	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C6850	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C6851	1-107-639-11	ELECT	47MF	20%	160V
C6853	1-102-228-00	CERAMIC	470PF	10%	500V
C6854	1-126-941-11	ELECT	470MF	20%	25V
C6855	1-123-024-21	ELECT	33MF		160V
C6856	1-126-971-11	ELECT	470MF	20%	50V
C6857	1-102-228-00	CERAMIC	470PF	10%	500V
C6858	1-102-228-00	CERAMIC	470PF	10%	500V
C6859	1-162-129-00	CERAMIC	150PF	10%	2KV
C6860	1-162-131-11	CERAMIC	220PF	10%	2KV
C6862	1-130-202-00	FILM	0.022MF	5%	200V
C6863	1-107-906-11	ELECT	10MF	20%	50V
C6864	1-129-898-00	FILM	0.0022MF	5%	630V
C6865	1-130-202-00	FILM	0.022MF	5%	400V
C6866	1-102-030-00	CERAMIC	330PF	10%	500V
C6867	1-130-785-11	MYLAR	0.47MF	10%	100V
C6868	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C6871	1-163-133-00	CERAMIC CHIP	470PF	5%	50V

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF. NO.	PART NO.	DESCRIPTION			REMARK
C6872	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V
C6874	1-136-165-00	MYLAR	0.1MF	5%	50V
C6875	1-104-664-11	ELECT	47MF	20%	16V
C6876	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C6877	1-126-964-11	ELECT	10MF	20%	50V
C6878	1-126-320-11	ELECT	10MF	20%	16V
C6879	1-107-960-11	ELECT	4.7MF	20%	160V
C6880	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C6882	1-104-574-11	CERAMIC	0.0047MF	10%	2KV
C6883	1-126-964-11	ELECT	10MF	20%	50V
C6884	1-115-565-11	CERAMIC CHIP	2.2MF	10%	10V
C6885	1-162-131-11	CERAMIC	220PF	10%	2KV

<CONNECTOR>

CN6602*⚠	1-508-786-00	PIN,CONNECTOR (5MM PITCH) 2P
CN6603*⚠	1-573-963-11	PIN, CONNECTOR (PC BOARD) 3P
CN6604*⚠	1-691-291-11	PIN, CONNECTOR (PC BOARD) 5P
CN6605*	1-564-513-11	PLUG, CONNECTOR 10P
CN6606*	1-564-510-11	PLUG, CONNECTOR 7P
CN6608*	1-564-506-11	PLUG, CONNECTOR 3P
CN6609*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6610*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6611*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6612*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6613*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6614*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6615*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6616*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6618*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6800	1-785-802-11	PIN, CONNECTOR (WITH PWB) 20P
CN6801*⚠	1-785-270-12	PIN, DY CONNECTOR (PC BOARD)
CN6802	1-793-495-11	CONNECTOR, BOARD TO BOARD 50P
CN6804	1-691-765-11	PLUG (MICRO CONNECTOR) 3P
CN6808	1-695-915-11	TAB (CONTACT)
CN6810	1-785-879-11	CONNECTOR, ONE TOUCH
CN6811*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6812*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P

<DIODE>

D6601	8-719-911-19	DIODE 1SS119-25
D6602	8-719-073-01	DIODE MA111-(K8).S0
D6603	8-719-073-01	DIODE MA111-(K8).S0
D6604	8-719-073-01	DIODE MA111-(K8).S0
D6605	8-719-510-53	DIODE D4SB60L
D6606	8-719-073-01	DIODE MA111-(K8).S0
D6607	8-719-073-01	DIODE MA111-(K8).S0
D6608	8-719-073-01	DIODE MA111-(K8).S0
D6609	8-719-911-19	DIODE 1SS119-25
D6610	8-719-073-01	DIODE MA111-(K8).S0
D6611	8-719-073-01	DIODE MA111-(K8).S0
D6612	8-719-911-55	DIODE U05G
D6613	8-719-911-55	DIODE U05G
D6614	8-719-110-30	DIODE RD12ESB1
D6615	8-719-911-19	DIODE 1SS119-25
D6616	8-719-911-55	DIODE U05G
D6617	8-719-911-55	DIODE U05G
D6618	8-719-073-01	DIODE MA111-(K8).S0
D6619	8-719-110-30	DIODE RD12ESB1
D6621	8-719-063-73	DIODE D1NL20U-TR
D6622	8-719-979-64	DIODE UF4005PKG23
D6623	8-719-059-23	DIODE P6KE200AG23
D6624	8-719-510-02	DIODE D1NS4
D6625	8-719-110-36	DIODE RD13ESB2
D6626	8-719-979-64	DIODE UF4005PKG23
D6628	8-719-063-73	DIODE D1NL20U-TR
D6631	8-719-050-18	DIODE D4SBL20U
D6632	8-719-073-01	DIODE MA111-(K8).S0
D6633	8-719-510-12	DIODE D10SC4M
D6634	8-719-060-88	DIODE D4SBS6
D6635	8-719-110-47	DIODE RD18ESB
D6636	8-719-911-19	DIODE 1SS119-25
D6639	8-719-063-73	DIODE D1NL20U-TR
D6640	8-719-110-72	DIODE RD30ESB2
D6641	8-719-109-96	DIODE RD6.8ESB1
D6642	8-719-911-19	DIODE 1SS119-25
D6643	8-719-979-64	DIODE UF4005PKG23
D6644	8-719-052-92	DIODE D10SBS4F
D6648	8-719-110-30	DIODE RD12ESB1
D6649	8-719-073-01	DIODE MA111-(K8).S0
D6650	8-719-911-19	DIODE 1SS119-25
D6651	8-719-977-95	DIODE DTZ-TT11-2.4B
D6652	8-719-110-47	DIODE RD18ESB
D6800	8-719-110-03	DIODE RD7.5ESB2
D6801	8-719-911-19	DIODE 1SS119-25
D6803	8-719-510-73	DIODE S3L20UF4
D6805	8-719-110-39	DIODE RD15ESB1
D6806	8-719-911-19	DIODE 1SS119-25
D6807	8-719-109-68	DIODE RD3.6ESB1
D6808	8-719-914-43	DIODE DAN202K
D6809	8-719-908-03	DIODE GP08D
D6812	8-719-110-39	DIODE RD15ESB1
D6813	8-719-302-43	DIODE EL1Z
D6814	8-719-018-82	DIODE RGP02-20EL-6394
D6816	8-719-510-73	DIODE S3L20UF4
D6817	8-719-510-73	DIODE S3L20UF4
D6820	8-719-970-87	DIODE ERA38-06
D6821	8-719-970-87	DIODE ERA38-06
D6823	8-719-911-19	DIODE 1SS119-25
D6824	8-719-510-73	DIODE S3L20UF4
D6825	8-719-914-43	DIODE DAN202K
D6826	8-719-911-19	DIODE 1SS119-25

<FERRITE BEAD>

FB6602	1-239-358-21	FILTER, NOISE
FB6603	1-239-358-21	FILTER, NOISE

<IC>

IC6601	8-759-198-31	IC UPC1093J-1-T
IC6602	8-759-103-93	IC UPC393C

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REF. NO.	PART NO.	DESCRIPTION		REMARK
IC6603	8-749-016-66	IC MCR5152		
IC6604	8-759-468-89	IC TOP209P		
IC6606	8-759-450-47	IC BA05T		
IC6607	8-749-012-13	IC DM-58		
IC6608	8-759-103-93	IC UPC393C		
IC6800	8-759-192-71	IC STV9379		
IC6801	8-759-450-95	IC LM393N		
IC6804	8-759-394-36	IC BA09T		
IC6805	8-759-394-35	IC BA12T		
		<CHIP CONDUCTOR>		
JR6601	1-216-295-91	SHORT	0	
JR6603	1-216-295-91	SHORT	0	
JR6604	1-216-296-91	SHORT	0	
JR6605	1-216-296-91	SHORT	0	
JR6606	1-216-296-91	SHORT	0	
JR6607	1-216-295-91	SHORT	0	
JR6608	1-216-296-91	SHORT	0	
JR6609	1-216-295-91	SHORT	0	
JR6610	1-216-296-91	SHORT	0	
JR6611	1-216-295-91	SHORT	0	
JR6802	1-216-296-91	SHORT	0	
JR6803	1-216-295-91	SHORT	0	
JR6810	1-216-295-91	SHORT	0	
		<COIL>		
L6601	1-412-525-31	INDUCTOR	10UH	
L6602	1-410-397-21	FERRITE	1.1UH	
L6603	1-410-397-21	FERRITE	1.1UH	
L6604	1-412-525-31	INDUCTOR	10UH	
L6605	1-412-525-31	INDUCTOR	10UH	
L6606	1-412-525-31	INDUCTOR	10UH	
L6607	1-412-519-11	INDUCTOR	3.3UH	
L6800	1-412-525-31	INDUCTOR	10UH	
L6801	1-406-675-11	INDUCTOR	4.7MMH	
L6803	1-406-985-11	INDUCTOR	2.2MMH	
L6804	1-412-519-11	INDUCTOR	3.3UH	
L6805	1-412-519-11	INDUCTOR	3.3UH	
L6806	1-412-519-11	INDUCTOR	3.3UH	
L6807	1-412-552-11	INDUCTOR	2.2MMH	
L6808	1-406-674-11	INDUCTOR	3.3MMH	
		<NEON LAMP>		
NL6601	1-576-429-11	GAP, SPARK (KV-ES29M61)		
		<PHOTO COUPLER>		
PH6601⚠	8-749-924-35	PHOTO COUPLER ON3171-R		
PH6602⚠	8-749-924-35	PHOTO COUPLER ON3171-R		
		<IC LINK>		
PS6605	1-533-597-41	LINK, IC		
PS6606	1-533-597-41	LINK, IC		
PS6607	1-533-597-41	LINK, IC		
PS6801	1-532-841-21	LINK, IC		
		<TRANSISTOR>		
Q6601	8-729-119-78	TRANSISTOR 2SC2785-HFE		
Q6602	8-729-119-78	TRANSISTOR 2SC2785-HFE		
Q6603	8-729-026-39	TRANSISTOR 2SA933AS-QT		
Q6603	8-729-119-76	TRANSISTOR 2SA1175-HFE		
Q6604	8-729-119-76	TRANSISTOR 2SA1175-HFE		
Q6605	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q6606	8-729-140-93	TRANSISTOR 2SB733-34		
Q6608	8-729-200-21	TRANSISTOR 2SC2500-B		
Q6609	8-729-029-56	TRANSISTOR DTA144ESA		
Q6610	8-729-119-78	TRANSISTOR 2SC2785-HFE		
Q6611	8-729-029-66	TRANSISTOR DTC114ESA		
Q6612	8-729-029-66	TRANSISTOR DTC114ESA		
Q6613	8-729-030-02	TRANSISTOR DTC144ESA		
Q6614	8-729-119-76	TRANSISTOR 2SA1175-HFE		
Q6615	8-729-900-53	TRANSISTOR DTC114EK		
Q6616	8-729-029-66	TRANSISTOR DTC114ESA		
Q6800	8-729-422-33	TRANSISTOR 2SD601A-Q-TX		
Q6801	8-729-039-68	TRANSISTOR IRF620		
Q6802	8-729-046-33	TRANSISTOR IRF720-LF49		
Q6803	8-729-119-76	TRANSISTOR 2SA1175-HFE		
Q6804	8-729-119-78	TRANSISTOR 2SC2785-HFE		
Q6805	8-729-140-96	TRANSISTOR 2SD774-34		
Q6806	8-729-140-96	TRANSISTOR 2SD774-34		
Q6807	8-729-046-18	TRANSISTOR 2SC5480-01		
Q6808	8-729-046-18	TRANSISTOR 2SC5480-01		
Q6809	8-729-038-83	TRANSISTOR 2SK2251-01-F19		
Q6810	8-729-047-60	TRANSISTOR IRFI830G-LF49		
Q6811	1-801-806-11	TRANSISTOR DTC144EKA-T146		
Q6812	8-729-043-95	TRANSISTOR 2SC3840(3)		
Q6813	8-729-422-33	TRANSISTOR 2SD601A-Q-TX		
Q6814	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q6815	8-729-045-65	TRANSISTOR 2SA1776TV2Q		
Q6816	8-729-140-96	TRANSISTOR 2SD774-34		
Q6817	8-729-422-33	TRANSISTOR 2SD601A-Q-TX		
Q6818	1-801-806-11	TRANSISTOR DTC144EKA-T146		
Q6819	1-801-806-11	TRANSISTOR DTC144EKA-T146		
Q6820	8-729-422-33	TRANSISTOR 2SD601A-Q-TX		
Q6821	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q6823	8-729-422-33	TRANSISTOR 2SD601A-Q-TX		
		<RESISTOR>		
R6500	1-220-797-11	CEMENTED	0.47 5% 10W F	
R6600	1-216-295-91	SHORT	0	
R6602	1-249-417-11	CARBON	1K 5% 1/4W	
R6603	1-208-806-11	METAL CHIP	10K 0.50% 1/10W	
R6604	1-208-806-11	METAL CHIP	10K 0.50% 1/10W	
R6605	1-215-471-00	METAL	120K 1% 1/4W	
R6606	1-215-466-00	METAL	75K 1% 1/4W	
R6607	1-215-489-00	METAL	680K 1% 1/4W	
R6608	1-215-489-00	METAL	680K 1% 1/4W	
R6609	1-215-489-00	METAL	680K 1% 1/4W	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

D

REF. NO.	PART NO.	DESCRIPTION			REMARK
R6610	1-208-830-11	METAL CHIP	100K	0.50% 1/10W	
R6611	1-208-798-11	METAL CHIP	4.7K	0.50% 1/10W	
R6612	1-215-471-00	METAL	120K	1% 1/4W	
R6613	1-215-489-00	METAL	680K	1% 1/4W	
R6614	1-215-489-00	METAL	680K	1% 1/4W	
R6615	1-215-489-00	METAL	680K	1% 1/4W	
R6616	1-208-830-11	METAL CHIP	100K	0.50% 1/10W	
R6617	1-208-844-11	METAL CHIP	390K	0.50% 1/10W	
R6618	1-215-466-00	METAL	75K	1% 1/4W	
R6619	1-216-113-00	RES,CHIP	470K	5% 1/10W	
R6620	1-208-846-11	METAL CHIP	470K	0.50% 1/10W	
R6621	1-216-073-00	RES,CHIP	10K	5% 1/10W	
R6622	1-220-797-11	CEMENTED	0.47	5% 10W	F
R6623	1-215-457-00	METAL	33K	1% 1/4W	
R6624	1-208-830-11	METAL CHIP	100K	0.50% 1/10W	
R6625	1-208-826-11	METAL CHIP	68K	0.50% 1/10W	
R6626	1-208-830-11	METAL CHIP	100K	0.50% 1/10W	
R6627	1-208-834-11	METAL CHIP	150K	0.50% 1/10W	
R6628	1-216-073-00	RES,CHIP	10K	5% 1/10W	
R6629	1-215-466-00	METAL	75K	1% 1/4W	
R6630	1-215-489-00	METAL	680K	1% 1/4W	
R6631	1-215-489-00	METAL	680K	1% 1/4W	
R6632	1-215-489-00	METAL	680K	1% 1/4W	
R6633	1-215-458-00	METAL	36K	1% 1/4W	
R6634	1-215-489-00	METAL	680K	1% 1/4W	
R6635	1-215-489-00	METAL	680K	1% 1/4W	
R6636	1-215-489-00	METAL	680K	1% 1/4W	
R6637	1-215-463-00	METAL	56K	1% 1/4W	
R6638	1-240-876-11	CEMENTED	1	5% 15W	
R6639	1-240-876-11	CEMENTED	1	5% 15W	
R6640	1-216-081-00	RES,CHIP	22K	5% 1/10W	
R6641	1-260-131-11	CARBON	470K	5% 1/2W	
R6642	1-260-131-11	CARBON	470K	5% 1/2W	
R6643	1-216-081-00	RES,CHIP	22K	5% 1/10W	
R6644	1-216-065-91	RES,CHIP	4.7K	5% 1/10W	
R6645	1-202-933-61	FUSIBLE	0.1	10% 1/2W	
R6646	1-216-073-00	RES,CHIP	10K	5% 1/10W	
R6647	1-215-864-00	METAL OXIDE	150	5% 1W	F
R6648	1-215-481-00	METAL	330K	1% 1/4W	
R6649	1-216-065-91	RES,CHIP	4.7K	5% 1/10W	
R6650	1-215-481-00	METAL	330K	1% 1/4W	
R6651	1-215-430-00	METAL	2.4K	1% 1/4W	
R6652	1-215-450-00	METAL	16K	1% 1/4W	
R6653	1-219-776-11	CARBON	2.2M	10% 1/2W	
R6654	1-216-089-91	RES,CHIP	47K	5% 1/10W	
R6655	1-216-073-00	RES,CHIP	10K	5% 1/10W	
R6656	1-215-481-00	METAL	330K	1% 1/4W	
R6657	1-247-791-91	CARBON	22	5% 1/4W	
R6658	1-216-073-00	RES,CHIP	10K	5% 1/10W	
R6659	1-216-073-00	RES,CHIP	10K	5% 1/10W	
R6660	1-249-389-11	CARBON	4.7	5% 1/4W	F
R6661	1-215-421-00	METAL	1K	1% 1/4W	
R6662	1-216-381-11	METAL OXIDE	0.22	5% 3W	F
R6663	1-216-381-11	METAL OXIDE	0.22	5% 3W	F
R6665	1-219-776-11	CARBON	2.2M	10% 1/2W	
R6666	1-208-782-11	METAL CHIP	1K	0.50% 1/10W	
R6667	1-249-413-11	CARBON	470	5% 1/4W	
R6668	1-216-017-91	RES,CHIP	47	5% 1/10W	
R6669	1-249-417-11	CARBON	1K	5% 1/4W	
R6672	1-249-421-11	CARBON	2.2K	5% 1/4W	
R6674	1-249-415-11	CARBON	680	5% 1/4W	
R6679	1-249-437-11	CARBON	47K	5% 1/4W	
R6680	1-216-362-11	METAL OXIDE	0.27	5% 2W	F
R6681	1-249-429-11	CARBON	10K	5% 1/4W	
R6682	1-249-416-11	CARBON	820	5% 1/4W	
R6683	1-260-127-11	CARBON	220K	5% 1/2W	
R6685	1-249-421-11	CARBON	2.2K	5% 1/4W	
R6686 ⚠	1-218-265-91	METAL	8.2M	5% 1W	
R6688	1-249-417-11	CARBON	1K	5% 1/4W	F
R6689	1-249-389-11	CARBON	4.7	5% 1/4W	
R6690	1-249-429-11	CARBON	10K	5% 1/4W	
R6691	1-260-131-11	CARBON	470K	5% 1/2W	
R6692	1-249-410-11	CARBON	270	5% 1/4W	
R6693	1-215-451-00	METAL (KV-ES29N90)	18K	1% 1/4W	
R6693	1-215-452-00	METAL (KV-ES29M61)	20K	1% 1/4W	
R6694	1-215-471-00	METAL	120K	1% 1/4W	
R6696	1-215-925-11	METAL OXIDE	22K	5% 3W	F
R6697	1-249-429-11	CARBON	10K	5% 1/4W	
R6698	1-249-417-11	CARBON	1K	5% 1/4W	
R6701	1-216-073-00	RES,CHIP	10K	5% 1/10W	
R6702	1-216-093-91	RES,CHIP	68K	5% 1/10W	
R6703	1-216-091-00	RES,CHIP	56K	5% 1/10W	
R6704	1-249-377-11	CARBON	0.47	5% 1/4W	F
R6707	1-249-421-11	CARBON	2.2K	5% 1/4W	
R6710	1-217-158-00	METAL	0.47	10% 5W	
R6711	1-215-471-00	METAL	120K	1% 1/4W	
R6712	1-215-451-00	METAL (KV-ES29N90)	18K	1% 1/4W	
R6712	1-215-452-00	METAL (KV-ES29M61)	18K	1% 1/4W	
R6713	1-249-423-11	CARBON	3.3K	5% 1/4W	F
R6714	1-249-423-11	CARBON	3.3K	5% 1/4W	F
R6715	1-249-429-11	CARBON (KV-ES29N90 ONLY)	10K	5% 1/4W	
R6800	1-249-429-11	CARBON	10K	5% 1/4W	
R6801	1-249-429-11	CARBON	10K	5% 1/4W	
R6802	1-249-429-11	CARBON	10K	5% 1/4W	
R6803	1-216-073-00	RES,CHIP	10K	5% 1/10W	
R6804	1-208-796-11	METAL CHIP	3.9K	0.50% 1/10W	
R6805	1-215-441-00	METAL	6.8K	1% 1/4W	
R6806	1-215-435-00	METAL	3.9K	1% 1/4W	
R6807	1-249-383-11	CARBON	1.5	5% 1/4W	F
R6810	1-214-798-21	METAL	1.8	1% 1/2W	
R6811	1-215-913-11	METAL OXIDE	220	5% 3W	F
R6812	1-247-843-11	CARBON	3.3K	5% 1/4W	
R6813	1-214-798-21	METAL	1.8	1% 1/2W	
R6814	1-216-057-00	RES,CHIP	2.2K	5% 1/10W	
R6815	1-208-801-11	METAL CHIP	6.2K	0.50% 1/10W	
R6816	1-214-915-00	METAL	120K	1% 1/2W	
R6818	1-215-485-00	METAL	470K	1% 1/4W	
R6819	1-249-421-11	CARBON	2.2K	5% 1/4W	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R6820	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R6822	1-216-461-00	METAL OXIDE	5.6K	5%	2W F
R6823	1-215-895-11	METAL OXIDE	3.3K	5%	2W F
R6824	1-249-411-11	CARBON	330	5%	1/4W
R6825	1-249-411-11	CARBON	330	5%	1/4W
R6826	1-216-459-00	METAL OXIDE	2.7K	5%	2W F
R6827	1-215-895-11	METAL OXIDE	3.3K	5%	2W F
R6828	1-249-417-11	CARBON	1K	5%	1/4W
R6829	1-249-417-11	CARBON	1K	5%	1/4W
R6830	1-247-764-11	CARBON	10K	5%	1/2W F
R6831	1-247-764-11	CARBON	10K	5%	1/2W F
R6832	1-215-477-00	METAL	220K	1%	1/4W
R6833	1-215-493-00	METAL	1M	1%	1/4W
R6834	1-216-381-11	METAL OXIDE	0.22	5%	3W F
R6835	1-216-381-11	METAL OXIDE	0.22	5%	3W F
R6836	1-215-905-11	METAL OXIDE	10	5%	3W F
R6837	1-215-905-11	METAL OXIDE	10	5%	3W F
R6838	1-215-461-00	METAL	47K	1%	1/4W
R6839	1-249-405-11	CARBON	100	5%	1/4W F
R6841	1-216-434-11	METAL OXIDE	1.8K	5%	1W F
R6842	1-215-923-00	METAL OXIDE	10K	5%	3W F
R6843	1-216-073-00	RES,CHIP	10K	5%	1/10W
R6844	1-247-807-31	CARBON	100	5%	1/4W
R6846	1-260-127-11	CARBON	220K	5%	1/2W
R6849	1-249-443-11	CARBON	0.47	5%	1/4W F
R6850	1-249-443-11	CARBON	0.47	5%	1/4W F
R6851	1-260-288-11	CARBON	0.47	5%	1/2W F
R6852	1-216-345-11	METAL OXIDE	0.47	5%	1W F
R6853	1-260-288-11	CARBON	0.47	5%	1/2W F
R6854	1-215-923-00	METAL OXIDE	10K	5%	3W F
R6855	1-214-899-81	METAL	27K	1%	1/2W
R6856	1-215-923-00	METAL OXIDE	10K	5%	3W F
R6857	1-215-923-00	METAL OXIDE	10K	5%	3W F
R6858	1-214-899-81	METAL	27K	1%	1/2W
R6859	1-215-871-11	METAL OXIDE	2.2K	5%	1W F
R6860	1-215-923-00	METAL OXIDE	10K	5%	3W F
R6861	1-216-295-91	SHORT	0		
R6862	1-216-081-00	RES,CHIP	22K	5%	1/10W
R6863	1-215-894-11	METAL OXIDE	2.2K	5%	2W F
R6864	1-216-081-00	RES,CHIP	22K	5%	1/10W
R6865	1-216-103-00	RES,CHIP	180K	5%	1/10W
R6866	1-215-433-00	METAL	3.3K	1%	1/4W
R6867	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R6868	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R6869	1-216-115-00	RES,CHIP	560K	5%	1/10W
R6870	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R6871	1-208-822-11	METAL CHIP	47K	0.50%	1/10W
R6872	1-260-125-11	CARBON	150K	5%	1/2W
R6873	1-260-125-11	CARBON	150K	5%	1/2W
R6875	1-249-417-11	CARBON	1K	5%	1/4W
R6876	1-216-391-11	METAL OXIDE	1.5	5%	3W F
R6877	1-208-790-11	METAL CHIP	2.2K	0.50%	1/10W
R6878	1-208-770-11	METAL CHIP	330	0.50%	1/10W
R6880	1-215-441-00	METAL	6.8K	1%	1/4W
R6881	1-215-453-00	METAL	22K	1%	1/4W
R6882	1-215-456-00	METAL	30K	1%	1/4W
R6883	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R6884	1-249-441-11	CARBON	100K	5%	1/4W
R6885	1-208-798-11	METAL CHIP	4.7K	0.50%	1/10W
R6886	1-208-798-11	METAL CHIP	4.7K	0.50%	1/10W
R6887	1-216-081-00	RES,CHIP	22K	5%	1/10W
R6888	1-216-089-91	RES,CHIP	47K	5%	1/10W
R6889	1-260-125-11	CARBON	150K	5%	1/2W
R6890	1-260-125-11	CARBON	150K	5%	1/2W
R6891	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R6892	1-216-097-91	RES,CHIP	100K	5%	1/10W
R6893	1-216-085-00	RES,CHIP	33K	5%	1/10W
R6894	1-260-133-11	CARBON	680K	5%	1/2W
R6895	1-216-097-91	RES,CHIP	100K	5%	1/10W
R6896	1-216-089-91	RES,CHIP	47K	5%	1/10W
R6897	1-216-097-91	RES,CHIP	100K	5%	1/10W
R6899	1-216-073-00	RES,CHIP	10K	5%	1/10W
R6900	1-208-810-11	METAL CHIP	15K	0.50%	1/10W
R6901	1-208-810-11	METAL CHIP	15K	0.50%	1/10W
R6902	1-249-441-11	CARBON	100K	5%	1/4W
R6903	1-215-923-00	METAL OXIDE	10K	5%	3W F
R6905	1-249-389-11	CARBON	4.7	5%	1/4W F
R6906	1-216-079-00	RES,CHIP	18K	5%	1/10W
R6907	1-216-079-00	RES,CHIP	18K	5%	1/10W

<RELAY>

RY6601⚠	1-515-840-12	RELAY
RY6602⚠	1-755-357-11	RELAY, AC POWER
RY6603⚠	1-755-357-11	RELAY, AC POWER

<TRANSFORMER>

T6601 ⚠	1-431-732-12	TRANSFORMER, CONVERTER (SRT)
T6602 ⚠	1-435-081-11	TRANSFORMER, CONVERTER (PIT)
T6800	1-429-741-11	TRANSFORMER, DRIVE
T6801	1-433-934-11	TRANSFORMER, FERRITE (DFT)
T6802	1-433-489-11	TRANSFORMER, FERRITE (HDT)
T6803 ⚠	1-453-325-11	FBT ASSY (NX-4522//J114)
T6804	1-433-489-11	TRANSFORMER, FERRITE (HDT)

<THERMISTOR>

TH6601⚠	1-803-540-11	THERMISTOR, POSITIVE (KV-ES29M61)
TH6601⚠	1-803-629-11	THERMISTOR, POSITIVE (KV-ES29N90)
TH6603	1-803-586-11	THERMISTOR, NTC

<VARISTOR>

VD6601	1-803-614-11	VARISTOR

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DH D1

REF. NO.	PART NO.	DESCRIPTION			REMARK
*	A-1343-791-A	DH BOARD MOUNTED (KV-ES29N90)			
*	A-1343-821-A	DH BOARD MOUNTED (KV-ES29M61)			
		**********			
		<CONNECTOR>			
CN3801	1-695-915-11	TAB (CONTACT)			
CN3803	1-695-915-11	TAB (CONTACT)			
		<NEON LAMP>			
NL3801	1-576-414-21	GAP, SPARK			
		<RESISTOR>			
R3811	1-219-510-11	CARBON	470K	5%	1/2W
R3812	1-219-759-11	CARBON	1M	5%	1/2W
**********					
*	A-1343-742-B	D1 BOARD MOUNTED (KV-ES29N90)			
*	A-1343-819-A	D1 BOARD MOUNTED (KV-ES29M61)			
		**********			
	1-923-515-25	WIRE UL1007 AWG24 90MM BLK			
	4-027-606-01	HEAT SINK (TO-220 TYPE)			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
		<CAPACITOR>			
C6101	1-107-714-11	ELECT	10MF	20%	50V
C6102	1-109-953-11	ELECT	2.2MF	20%	50V
C6103	1-107-714-11	ELECT	10MF	20%	50V
C6104	1-126-965-11	ELECT	22MF	20%	50V
C6105	1-104-665-11	ELECT	100MF	20%	25V
C6106	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C6108	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C6109	1-126-967-11	ELECT	47MF	20%	50V
C6112	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C6113	1-137-493-11	FILM	0.0047MF	5%	630V
C6114	1-107-909-11	ELECT	47MF	20%	50V
C6115	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C6116	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V
C6117	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V
C6118	1-107-909-11	ELECT	47MF	20%	16V
C6120	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C6121	1-126-963-11	ELECT	4.7MF	20%	50V
C6122	1-126-967-11	ELECT	47MF	20%	50V
C6123	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C6124	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C6125	1-104-664-11	ELECT	47MF	20%	16V
C6127	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C6128	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C6129	1-126-964-11	ELECT	10MF	20%	50V
C6131	1-126-964-11	ELECT	10MF	20%	50V
C6133	1-137-194-81	MYLAR	0.47MF	5%	50V
C6136	1-129-716-00	FILM	0.015MF	5%	630V

REF. NO.	PART NO.	DESCRIPTION			REMARK
C6138	1-126-968-11	ELECT	100MF	20%	50V
C6139	1-107-902-11	ELECT	1MF	20%	50V
C6140	1-126-960-11	ELECT	1MF	20%	50V
C6201	1-126-967-11	ELECT	47MF	20%	50V
C6202	1-126-967-11	ELECT	47MF	20%	50V
C6203	1-126-967-11	ELECT	47MF	20%	50V
C6204	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C6205	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C6206	1-126-964-11	ELECT	10MF	20%	50V
C6207	1-126-967-11	ELECT	47MF	20%	50V
C6208	1-126-967-11	ELECT	47MF	20%	50V
C6209	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C6210	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C6211	1-126-964-11	ELECT	10MF	20%	50V
C6212	1-164-222-11	CERAMIC CHIP	0.22MF		25V
C6350	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C6351	1-126-967-11	ELECT	47MF	20%	50V
C6353	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C6355	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C6356	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C6358	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C6361	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C6362	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C6365	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C6376	1-104-664-11	ELECT	47MF	20%	16V
C6377	1-128-551-11	ELECT	22MF	20%	25V
C6378	1-115-339-11	CERAMIC CHIP	0.1MF	10%	50V
C6380	1-136-495-11	MYLAR	0.068MF	5%	50V
C6381	1-126-964-11	ELECT	10MF	20%	50V
C6385	1-104-664-11	ELECT	47MF	20%	25V
C6386	1-104-664-11	ELECT	47MF	20%	25V
C6388	1-126-964-11	ELECT	10MF	20%	50V
C6392	1-104-664-11	ELECT	47MF	20%	25V
C6409	1-126-963-11	ELECT	4.7MF	20%	50V
		<CONNECTOR>			
CN6100	1-793-498-11	CONNECTOR, BOARD TO BOARD 50P			
CN6101*	1-564-525-11	PLUG, CONNECTOR 10P			
CN6103*	1-564-518-11	PLUG, CONNECTOR 3P			
CN6104*	1-564-523-11	PLUG, CONNECTOR 8P			
		<DIODE>			
D6101	8-719-510-02	DIODE D1NS4			
D6102	8-719-510-02	DIODE D1NS4			
D6103	8-719-063-73	DIODE D1NL20U-TR			
D6104	8-719-911-19	DIODE 1SS119-25			
D6105	8-719-109-60	DIODE RD2.7ESB2			
D6106	8-719-510-02	DIODE D1NS4			
D6107	8-719-911-19	DIODE 1SS119-25			
D6108	8-719-911-19	DIODE 1SS119-25			
D6110	8-719-987-87	DIODE ERA85-009			
D6133	8-719-911-19	DIODE 1SS119-25			
D6134	8-719-911-19	DIODE 1SS119-25			
D6201	8-719-109-88	DIODE RD5.6ESB1			

D1

REF. NO.	PART NO.	DESCRIPTION		REMARK
D6210	8-719-109-88	DIODE RD5.6ESB1		
D6350	8-719-914-43	DIODE DAN202K		
D6351	8-719-914-43	DIODE DAN202K		
D6355	8-719-914-43	DIODE DAN202K		
D6404	8-719-914-43	DIODE DAN202K		
		<IC>		
IC6101	8-752-053-21	IC CXA1211M		
IC6102	8-759-450-95	IC LM393N		
IC6103	8-759-450-95	IC LM393N		
IC6104	8-759-803-42	IC LA6500-FA		
IC6105	8-759-450-95	IC LM393N		
IC6106	8-759-198-31	IC UPC1093J-1-T		
IC6108	8-759-567-08	IC MB88141APF-ER		
IC6201	8-759-183-37	IC CA0007AD		
IC6202	8-759-135-80	IC UPC358C		
IC6351	8-759-450-95	IC LM393N		
IC6353	8-759-231-53	IC TA7805S		
IC6354	8-759-325-48	IC CA0005AD		
IC6356	8-759-822-38	IC LA6510		
		<CHIP CONDUCTOR>		
JR6101	1-216-296-91	SHORT	0	
JR6102	1-216-296-91	SHORT	0	
JR6103	1-216-296-91	SHORT	0	
JR6104	1-216-295-91	SHORT	0	
JR6105	1-216-296-91	SHORT	0	
JR6106	1-216-296-91	SHORT	0	
JR6107	1-216-296-91	SHORT	0	
JR6108	1-216-296-91	SHORT	0	
JR6109	1-216-296-91	SHORT	0	
JR6110	1-216-296-91	SHORT	0	
JR6111	1-216-296-91	SHORT	0	
JR6112	1-216-296-91	SHORT	0	
JR6113	1-216-296-91	SHORT	0	
JR6114	1-216-296-91	SHORT	0	
JR6115	1-216-296-91	SHORT	0	
		<COIL>		
L6101	1-416-920-11	INDUCTOR	10MMH	
L6102	1-406-989-21	INDUCTOR	10MMH	
		<IC LINK>		
PS6101	1-533-589-31	LINK, IC		
		<TRANSISTOR>		
Q6103	8-729-046-33	TRANSISTOR IRF720-LF49		
Q6104	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q6105	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q6106	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q6107	8-729-140-93	TRANSISTOR 2SB733-34		
Q6108	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q6118	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q6124	8-729-422-33	TRANSISTOR 2SD601A-Q-TX		
Q6125	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q6126	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q6128	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q6201	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q6202	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q6203	8-729-422-33	TRANSISTOR 2SD601A-Q-TX		
Q6350	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q6356	8-729-230-49	TRANSISTOR 2SC2712-YG		
Q6405	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		
Q6455	8-729-230-49	TRANSISTOR 2SC2712-YG		
		<RESISTOR>		
R6101	1-216-025-91	RES,CHIP	100	5% 1/10W
R6103	1-216-049-91	RES,CHIP	1K	5% 1/10W
R6104	1-216-065-91	RES,CHIP	4.7K	5% 1/10W
R6105	1-208-798-11	METAL CHIP	4.7K	0.50% 1/10W
R6106	1-208-798-11	METAL CHIP	4.7K	0.50% 1/10W
R6107	1-216-057-00	RES,CHIP	2.2K	5% 1/10W
R6108	1-216-073-00	RES,CHIP	10K	5% 1/10W
R6109	1-216-073-00	RES,CHIP	10K	5% 1/10W
R6110	1-216-295-91	SHORT	0	
R6112	1-208-840-11	METAL CHIP	270K	0.50% 1/10W
R6113	1-208-822-11	METAL CHIP	47K	0.50% 1/10W
R6114	1-208-806-11	METAL CHIP	10K	0.50% 1/10W
R6115	1-208-814-91	METAL CHIP	22K	0.50% 1/10W
R6116	1-216-057-00	RES,CHIP	2.2K	5% 1/10W
R6117	1-208-782-11	METAL CHIP	1K	0.50% 1/10W
R6118	1-208-810-11	METAL CHIP	15K	0.50% 1/10W
R6119	1-208-796-11	METAL CHIP	3.9K	0.50% 1/10W
R6120	1-208-806-11	METAL CHIP	10K	0.50% 1/10W
R6121	1-216-490-11	METAL OXIDE	39K	5% 3W F
R6122	1-216-295-91	SHORT	0	
R6123	1-208-782-11	METAL CHIP	1K	0.50% 1/10W
R6124	1-208-800-11	METAL CHIP	5.6K	0.50% 1/10W
R6125	1-216-057-00	RES,CHIP	2.2K	5% 1/10W
R6126	1-208-798-11	METAL CHIP	4.7K	0.50% 1/10W
R6127	1-208-832-11	METAL CHIP	120K	0.50% 1/10W
R6128	1-208-838-91	METAL CHIP	220K	0.50% 1/10W
R6129	1-216-353-00	METAL OXIDE	2.2	5% 1W F
R6130	1-216-073-00	RES,CHIP	10K	5% 1/10W
R6131	1-208-820-11	METAL CHIP	39K	0.50% 1/10W
R6133	1-208-812-11	METAL CHIP	18K	0.50% 1/10W
R6134	1-208-806-11	METAL CHIP	10K	0.50% 1/10W
R6135	1-216-073-00	RES,CHIP	10K	5% 1/10W
R6136	1-260-099-11	CARBON	1K	5% 1/2W
R6137	1-216-049-91	RES,CHIP	1K	5% 1/10W
R6138	1-208-798-11	METAL CHIP	4.7K	0.50% 1/10W
R6139	1-208-804-11	METAL CHIP	8.2K	0.50% 1/10W
R6140	1-216-077-91	RES,CHIP	15K	5% 1/10W
R6141	1-208-830-11	METAL CHIP	100K	0.50% 1/10W
R6142	1-208-806-11	METAL CHIP	10K	0.50% 1/10W
R6143	1-208-792-11	METAL CHIP	2.7K	0.50% 1/10W
R6144	1-208-840-11	METAL CHIP	270K	0.50% 1/10W
R6146	1-208-806-11	METAL CHIP	10K	0.50% 1/10W

D1 E

REF. NO.	PART NO.	DESCRIPTION				REMARK
R6149	1-208-828-11	METAL CHIP	82K	0.50%	1/10W	
R6150	1-208-806-11	METAL CHIP	10K	0.50%	1/10W	
R6151	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R6152	1-216-081-00	RES,CHIP	22K	5%	1/10W	
R6153	1-216-105-91	RES,CHIP	220K	5%	1/10W	
R6154	1-208-804-11	METAL CHIP	8.2K	0.50%	1/10W	
R6155	1-208-822-11	METAL CHIP	47K	0.50%	1/10W	
R6156	1-216-077-91	RES,CHIP	15K	5%	1/10W	
R6157	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R6158	1-216-689-11	RES,CHIP	39K	5%	1/10W	
R6159	1-208-798-11	METAL CHIP	4.7K	0.50%	1/10W	
R6161	1-208-814-91	METAL CHIP	22K	0.50%	1/10W	
R6162	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R6168	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R6169	1-208-776-11	METAL CHIP	560	0.50%	1/10W	
R6170	1-216-037-00	RES,CHIP	330	5%	1/10W	
R6171	1-216-113-00	RES,CHIP	470K	5%	1/10W	
R6172	1-216-105-91	RES,CHIP	220K	5%	1/10W	
R6173	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R6174	1-216-079-00	RES,CHIP	18K	5%	1/10W	
R6175	1-208-816-11	METAL CHIP	27K	0.50%	1/10W	
R6176	1-249-389-11	CARBON	4.7	5%	1/4W	F
R6177	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R6178	1-249-389-11	CARBON	4.7	5%	1/4W	F
R6179	1-216-101-00	RES,CHIP	150K	5%	1/10W	
R6180	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R6181	1-216-105-91	RES,CHIP	220K	5%	1/10W	
R6190	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R6192	1-216-295-91	SHORT	0			
R6195	1-208-806-11	METAL CHIP	10K	0.50%	1/10W	
R6196	1-249-377-11	CARBON	0.47	5%	1/4W	F
R6200	1-208-836-11	METAL CHIP	180K	0.50%	1/10W	
R6201	1-247-750-11	CARBON	680	5%	1/2W	F
R6202	1-216-061-00	RES,CHIP	3.3K	5%	1/10W	
R6203	1-215-906-11	METAL OXIDE	15	5%	3W	F
R6204	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R6206	1-216-033-00	RES,CHIP	220	5%	1/10W	
R6207	1-208-794-11	METAL CHIP	3.3K	0.50%	1/10W	
R6208	1-208-806-11	METAL CHIP	10K	0.50%	1/10W	
R6209	1-216-099-00	RES,CHIP	120K	5%	1/10W	
R6210	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R6211	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R6212	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R6213	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R6215	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R6216	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R6217	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R6218	1-208-836-11	METAL CHIP	180K	0.50%	1/10W	
R6219	1-208-782-11	METAL CHIP	1K	0.50%	1/10W	
R6220	1-208-822-11	METAL CHIP	47K	0.50%	1/10W	
R6221	1-208-822-11	METAL CHIP	47K	0.50%	1/10W	
R6222	1-216-295-91	SHORT	0			
R6223	1-216-295-91	SHORT	0			
R6224	1-208-824-11	METAL CHIP	56K	0.50%	1/10W	
R6225	1-208-824-11	METAL CHIP	56K	0.50%	1/10W	
R6226	1-216-033-00	RES,CHIP	220	5%	1/10W	
R6227	1-216-033-00	RES,CHIP	220	5%	1/10W	
R6324	1-216-017-91	RES,CHIP	47	5%	1/10W	
R6325	1-216-017-91	RES,CHIP	47	5%	1/10W	
R6326	1-208-808-11	METAL CHIP	12K	0.50%	1/10W	
R6327	1-216-067-00	RES,CHIP	5.6K	5%	1/10W	
R6350	1-216-067-00	RES,CHIP	5.6K	5%	1/10W	
R6357	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R6359	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R6360	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R6361	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R6367	1-208-808-11	METAL CHIP	12K	0.50%	1/10W	
R6368	1-208-810-11	METAL CHIP	15K	0.50%	1/10W	
R6375	1-216-041-00	RES,CHIP	470	5%	1/10W	
R6378	1-215-473-00	METAL	150K	1%	1/4W	
R6379	1-216-295-91	SHORT	0			
R6382	1-208-830-11	METAL CHIP	100K	0.50%	1/10W	
R6385	1-216-295-91	SHORT	0			
R6386	1-208-830-11	METAL CHIP	100K	0.50%	1/10W	
R6391	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R6394	1-216-069-00	RES,CHIP	6.8K	5%	1/10W	
R6413	1-208-806-11	METAL CHIP	10K	0.50%	1/10W	
R6416	1-208-808-11	METAL CHIP	12K	0.50%	1/10W	
R6418	1-216-113-00	RES,CHIP	470K	5%	1/10W	
R6419	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R6420	1-216-111-00	RES,CHIP	390K	5%	1/10W	
R6433	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R6438	1-215-437-00	METAL	4.7K	1%	1/4W	
R6442	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R6456	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R6457	1-208-814-91	METAL CHIP	22K	0.50%	1/10W	
R6458	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R6459	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
		<VARIABLE RESISTOR>				
RV6100	1-241-785-11	RES, ADJ, CERMET 10K				

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* A-1343-743-D E BOARD MOUNTED (KV-ES29N90)
* A-1343-820-A E BOARD MOUNTED (KV-ES29M61)
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<CAPACITOR>

C4301	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4308	1-126-960-11	ELECT	1UF	20.00%	50V
C4309	1-164-489-11	CERAMIC CHIP	0.22UF	10.00%	16V
C4316	1-104-664-11	ELECT	47UF	20.00%	25V
C4317	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4318	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4319	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4320	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4321	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4322	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4324	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4325	1-163-093-00	CERAMIC CHIP	10PF	5.00%	50V
C4326	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V

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REF. NO.	PART NO.	DESCRIPTION			REMARK
C4327	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4328	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4329	1-126-963-11	ELECT	4.7UF	20.00% 50V	
C4330	1-136-244-11	FILM	0.1UF	5.00% 50V	
C4331	1-126-959-11	ELECT	0.47UF	20.00% 50V	
C4332	1-136-161-00	MYLAR	0.047UF	5.00% 50V	
C4333	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4334	1-126-967-11	ELECT	47UF	20.00% 50V	
C4336	1-126-967-11	ELECT	47UF	20.00% 50V	
C4338	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4339	1-163-235-11	CERAMIC CHIP	22PF	5.00% 50V	
C4340	1-126-967-11	ELECT	47UF	20.00% 50V	
C4341	1-163-227-11	CERAMIC CHIP	10PF	0.50PF 50V	
C4342	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C4343	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4344	1-163-809-11	CERAMIC CHIP	0.047UF	10.00% 25V	
C4345	1-126-967-11	ELECT	47UF	20.00% 50V	
C4346	1-164-346-11	CERAMIC CHIP	1UF	16V	
C4347	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4348	1-164-346-11	CERAMIC CHIP	1UF	16V	
C4349	1-164-346-11	CERAMIC CHIP	1UF	16V	
C4350	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4351	1-163-009-11	CERAMIC CHIP	0.001UF	10.00% 50V	
C4352	1-126-967-11	ELECT	47UF	20.00% 50V	
C4353	1-107-823-11	CERAMIC CHIP	0.47UF	10.00% 16V	
C4354	1-107-823-11	CERAMIC CHIP	0.47UF	10.00% 16V	
C4355	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4356	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4357	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4358	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4359	1-164-161-11	CERAMIC CHIP	0.0022UF	10.00% 50V	
C4360	1-126-963-11	ELECT	4.7UF	20.00% 50V	
C4362	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4363	1-126-967-11	ELECT	47UF	20.00% 50V	
C4364	1-126-967-11	ELECT	47UF	20.00% 50V	
C4366	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C4367	1-104-760-11	CERAMIC CHIP	0.047UF	10.00% 50V	
C4369	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4370	1-126-967-11	ELECT	47UF	20.00% 50V	
C4371	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4378	1-163-251-11	CERAMIC CHIP	100PF	5.00% 50V	
C4800	1-136-165-00	MYLAR	0.1UF	5.00% 50V	
C4801	1-136-161-00	MYLAR	0.047UF	5.00% 50V	
C4802	1-163-275-11	CERAMIC CHIP	0.001UF	5.00% 50V	
C4803	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C4804	1-126-967-11	ELECT	47UF	20.00% 50V	
C4805	1-126-964-11	ELECT	10UF	20.00% 50V	
C4806	1-163-133-00	CERAMIC CHIP	470PF	5.00% 50V	
C4808	1-136-165-00	MYLAR	0.1UF	5.00% 50V	
C4809	1-163-275-11	CERAMIC CHIP	0.001UF	5.00% 50V	
C4811	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C4812	1-126-967-11	ELECT	47UF	20.00% 50V	
C4813	1-163-021-91	CERAMIC CHIP	0.01UF	10.00% 50V	
C4814	1-126-967-11	ELECT	47UF	20.00% 50V	
C4816	1-163-227-11	CERAMIC CHIP	10PF	0.50PF 50V	

REF. NO.	PART NO.	DESCRIPTION			REMARK
C4817	1-126-967-11	ELECT	47UF	20.00% 50V	
C4818	1-126-961-11	ELECT	2.2UF	20.00% 50V	
C4820	1-107-909-11	ELECT	47UF	20.00% 50V	
C4821	1-107-909-11	ELECT	47UF	20.00% 16V	
C4822	1-107-909-11	ELECT	47UF	20.00% 16V	
C4823	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00% 50V	
C4824	1-163-809-11	CERAMIC CHIP	0.047UF	10.00% 25V	
C4825	1-163-809-11	CERAMIC CHIP	0.047UF	10.00% 25V	
C4833	1-126-964-11	ELECT	10UF	20.00% 50V	
C4834	1-126-933-11	ELECT	100UF	20.00% 16V	
C4835	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4836	1-164-004-11	CERAMIC CHIP	0.1UF	10.00% 25V	
C4837	1-163-275-11	CERAMIC CHIP	0.001UF	5.00% 50V	
		<CONNECTOR>			
CN4101	1-793-497-11	CONNECTOR, BOARD TO BOARD 40P			
CN4500*	1-564-512-11	PLUG, CONNECTOR 9P			
CN4502*	1-564-506-11	PLUG, CONNECTOR 3P			
		<DIODE>			
D4303	8-719-109-72	DIODE RD3.9ES-T1B			
D4304	8-719-977-22	DIODE UDZ-TE-17-9.1B			
D4305	8-719-977-22	DIODE UDZ-TE-17-9.1B			
D4311	8-719-914-43	DIODE DAN202K-T-146			
D4312	8-719-914-43	DIODE DAN202K-T-146			
D4313	8-719-401-63	DIODE MA3062M-TX			
D4314	8-719-914-43	DIODE DAN202K-T-146			
D4800	8-719-914-43	DIODE DAN202K-T-146			
D4801	8-719-914-43	DIODE DAN202K-T-146			
D4802	8-719-109-81	DIODE RD4.7ES-T1B2			
D4803	8-719-911-19	DIODE 1SS119-25TD			
D4804	8-719-911-19	DIODE 1SS119-25TD			
D4807	8-719-914-43	DIODE DAN202K-T-146			
D4808	8-719-914-43	DIODE DAN202K-T-146			
D4809	8-719-914-43	DIODE DAN202K-T-146			
D4811	8-719-109-54	DIODE RD2.2ES-T1B2			
D4812	8-719-911-19	DIODE 1SS119-25TD			
D4813	8-719-914-43	DIODE DAN202K-T-146			
D4814	8-719-914-43	DIODE DAN202K-T-146			
D4815	8-719-109-54	DIODE RD2.2ES-T1B2			
D4816	8-719-911-19	DIODE 1SS119-25TD			
		<FERRITE BEAD>			
FB4387	1-216-295-91	SHORT	0		
FB4388	1-216-295-91	SHORT	0		
FB4389	1-216-295-91	SHORT	0		
		<IC>			
IC4301	8-752-090-87	IC CXA2100AQ			
IC4800	8-759-450-95	IC LM393N			
IC4801	8-759-450-95	IC LM393N			
IC4802	8-759-638-79	IC NJM3404AD-W			
IC4803	8-759-700-42	IC NJM2904D			

E

REF. NO.	PART NO.	DESCRIPTION		REMARK
		<CHIP CONDUCTOR>		
JR4301	1-216-295-91	SHORT	0	
		<COIL>		
L4301	1-412-029-11	INDUCTOR CHIP	10UH	
L4302	1-412-029-11	INDUCTOR CHIP	10UH	
L4303	1-412-029-11	INDUCTOR CHIP	10UH	
L4304	1-412-029-11	INDUCTOR CHIP	10UH	
L4305	1-412-029-11	INDUCTOR CHIP	10UH	
L4306	1-412-029-11	INDUCTOR CHIP	10UH	
L4308	1-412-031-11	INDUCTOR CHIP	47UH	
L4309	1-412-031-11	INDUCTOR CHIP	47UH	
L4311	1-412-00	2-31 INDUCTOR CHIP	4.7UH	
		<TRANSISTOR>		
Q4301	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4302	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4303	8-729-120-28	TRANSISTOR 2SC2412K-T-146-R		
Q4304	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4307	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4308	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4310	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4315	1-801-806-11	TRANSISTOR DTC144EKA-T146		
Q4316	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4317	8-729-900-53	TRANSISTOR DTC114EKA-T146		
Q4319	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4320	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4321	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4322	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4800	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4801	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4802	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4803	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4804	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4805	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4806	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4807	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4808	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4809	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4810	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4811	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4812	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4813	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4814	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4815	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4816	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4817	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4818	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4820	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4821	1-801-806-11	TRANSISTOR DTC144EKA-T146		
Q4822	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4823	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4824	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR		
Q4825	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		
Q4826	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L		

REF. NO.	PART NO.	DESCRIPTION			REMARK
		<RESISTOR>			
R4301	1-216-025-91	RES-CHIP	100	5%	1/10W
R4302	1-216-025-91	RES-CHIP	100	5%	1/10W
R4303	1-216-025-91	RES-CHIP	100	5%	1/10W
R4304	1-216-025-91	RES-CHIP	100	5%	1/10W
R4305	1-216-025-91	RES-CHIP	100	5%	1/10W
R4306	1-216-025-91	RES-CHIP	100	5%	1/10W
R4307	1-216-025-91	RES-CHIP	100	5%	1/10W
R4308	1-216-295-91	SHORT	0		
R4310	1-216-295-91	SHORT	0		
R4312	1-216-295-91	SHORT	0		
R4313	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R4314	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4316	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R4317	1-216-081-00	RES-CHIP	22K	5%	1/10W
R4318	1-208-804-11	METAL CHIP	8.2K	0.5%	1/10W
R4319	1-208-804-11	METAL CHIP	8.2K	0.5%	1/10W
R4320	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R4321	1-216-298-00	RES-CHIP	2.2	5%	1/10W
R4323	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R4324	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R4325	1-208-818-11	METAL CHIP	33K	0.5%	1/10W
R4326	1-208-826-11	METAL CHIP	68K	0.5%	1/10W
R4327	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R4329	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R4330	1-216-089-91	RES-CHIP	47K	5%	1/10W
R4331	1-216-025-91	RES-CHIP	100	5%	1/10W
R4332	1-216-025-91	RES-CHIP	100	5%	1/10W
R4333	1-216-025-91	RES-CHIP	100	5%	1/10W
R4334	1-216-049-91	RES-CHIP	1K	5%	1/10W
R4335	1-216-025-91	RES-CHIP	100	5%	1/10W
R4336	1-216-025-91	RES-CHIP	100	5%	1/10W
R4337	1-216-025-91	RES-CHIP	100	5%	1/10W
R4338	1-216-041-00	RES-CHIP	470	5%	1/10W
R4339	1-216-051-00	RES-CHIP	1.2K	5%	1/10W
R4341	1-216-295-91	SHORT	0		
R4343	1-216-025-91	RES-CHIP	100	5%	1/10W
R4344	1-216-025-91	RES-CHIP	100	5%	1/10W
R4345	1-216-075-00	RES-CHIP	12K	5%	1/10W
R4346	1-208-812-11	METAL CHIP	18K	0.5%	1/10W
R4347	1-216-025-91	RES-CHIP	100	5%	1/10W
R4348	1-216-025-91	RES-CHIP	100	5%	1/10W
R4349	1-216-041-00	RES-CHIP	470	5%	1/10W
R4350	1-216-025-91	RES-CHIP	100	5%	1/10W
R4351	1-216-081-00	RES-CHIP	22K	5%	1/10W
R4352	1-216-041-00	RES-CHIP	470	5%	1/10W
R4353	1-216-051-00	RES-CHIP	1.2K	5%	1/10W
R4354	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R4355	1-216-049-91	RES-CHIP	1K	5%	1/10W
R4356	1-216-049-91	RES-CHIP	1K	5%	1/10W
R4357	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4358	1-216-071-00	RES-CHIP	8.2K	5%	1/10W
R4359	1-216-041-00	RES-CHIP	470	5%	1/10W
R4360	1-216-057-00	RES-CHIP	2.2K	5%	1/10W

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R4361	1-216-133-00	RES-CHIP	3.3M	5%	1/10W
R4363	1-216-025-91	RES-CHIP	100	5%	1/10W
R4365	1-216-025-91	RES-CHIP	100	5%	1/10W
R4366	1-216-025-91	RES-CHIP	100	5%	1/10W
R4367	1-216-025-91	RES-CHIP	100	5%	1/10W
R4369	1-216-025-91	RES-CHIP	100	5%	1/10W
R4370	1-216-049-91	RES-CHIP	1K	5%	1/10W
R4372	1-216-049-91	RES-CHIP	1K	5%	1/10W
R4373	1-216-295-91	SHORT	0		
R4374	1-216-025-91	RES-CHIP	100	5%	1/10W
R4375	1-216-049-91	RES-CHIP	1K	5%	1/10W
R4376	1-216-025-91	RES-CHIP	100	5%	1/10W
R4377	1-216-049-91	RES-CHIP	1K	5%	1/10W
R4380	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4381	1-216-129-00	RES-CHIP	2.2M	5%	1/10W
R4382	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4383	1-216-079-00	RES-CHIP	18K	5%	1/10W
R4384	1-216-025-91	RES-CHIP	100	5%	1/10W
R4387	1-216-295-91	SHORT	0		
R4388	1-216-295-91	SHORT	0		
R4389	1-216-295-91	SHORT	0		
R4395	1-216-295-91	SHORT	0		
R4396	1-216-295-91	SHORT	0		
R4397	1-216-295-91	SHORT	0		
R4399	1-247-807-31	CARBON	100	5%	1/4W
R4401	1-216-105-91	RES-CHIP	220K	5%	1/10W
R4408	1-216-025-91	RES-CHIP	100	5%	1/10W
R4409	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4410	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4411	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4412	1-216-097-91	RES-CHIP	100K	5%	1/10W
R4518	1-216-025-91	RES-CHIP	100	5%	1/10W
R4519	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4520	1-216-025-91	RES-CHIP	100	5%	1/10W
R4521	1-216-025-91	RES-CHIP	100	5%	1/10W
R4800	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4801	1-216-049-91	RES-CHIP	1K	5%	1/10W
R4802	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4803	1-216-049-91	RES-CHIP	1K	5%	1/10W
R4804	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R4805	1-208-792-11	METAL CHIP	2.7K	0.5%	1/10W
R4806	1-208-792-11	METAL CHIP	2.7K	0.5%	1/10W
R4807	1-216-049-91	RES-CHIP	1K	5%	1/10W
R4809	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4810	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R4811	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R4812	1-216-295-91	SHORT	0		
R4813	1-216-089-91	RES-CHIP	47K	5%	1/10W
R4814	1-216-097-91	RES-CHIP	100K	5%	1/10W
R4815	1-216-097-91	RES-CHIP	100K	5%	1/10W
R4816	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4817	1-208-854-11	METAL CHIP	1M	0.5%	1/10W
R4818	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4819	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4820	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4821	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4822	1-216-057-00	RES-CHIP	2.2K	5%	1/10W

REF. NO.	PART NO.	DESCRIPTION			REMARK
R4823	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4824	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4825	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4826	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4827	1-216-295-91	SHORT	0		
R4828	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4829	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4831	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
R4832	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R4833	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R4834	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R4835	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R4836	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R4837	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R4838	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R4839	1-208-804-11	METAL CHIP	8.2K	0.5%	1/10W
R4840	1-216-295-91	SHORT	0		
R4841	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4842	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R4843	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4844	1-208-796-11	METAL CHIP	3.9K	0.5%	1/10W
R4845	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R4846	1-216-295-91	SHORT	0		
R4847	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4848	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4849	1-216-085-00	RES-CHIP	33K	5%	1/10W
R4850	1-216-097-91	RES-CHIP	100K	5%	1/10W
R4851	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R4852	1-216-081-00	RES-CHIP	22K	5%	1/10W
R4853	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R4854	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R4855	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R4856	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4857	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R4859	1-208-802-11	METAL CHIP	6.8K	0.5%	1/10W
R4860	1-208-792-11	METAL CHIP	2.7K	0.5%	1/10W
R4861	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4862	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R4864	1-208-792-11	METAL CHIP	2.7K	0.5%	1/10W
R4865	1-216-295-91	SHORT	0		
R4866	1-216-089-91	RES-CHIP	47K	5%	1/10W
R4869	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R4871	1-208-816-11	METAL CHIP	27K	0.5%	1/10W
R4872	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4874	1-216-295-91	SHORT	0		
R4875	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4877	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4878	1-208-834-11	METAL CHIP	150K	0.5%	1/10W
R4879	1-216-105-91	RES-CHIP	220K	5%	1/10W
R4881	1-216-295-91	SHORT	0		
R4882	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R4883	1-208-842-11	METAL CHIP	330K	0.5%	1/10W
R4884	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R4886	1-208-826-11	METAL CHIP	68K	0.5%	1/10W
R4887	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R4892	1-216-295-91	SHORT	0		
R4894	1-216-073-00	RES-CHIP	10K	5%	1/10W
R4895	1-216-073-00	RES-CHIP	10K	5%	1/10W

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

E **F1** **F2** **H1**

REF. NO.	PART NO.	DESCRIPTION			REMARK
R4897	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W
R4898	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R4899	1-216-025-91	RES-CHIP	100	5%	1/10W
R4908	1-216-049-91	RES-CHIP	1K	5%	1/10W
R4909	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R4910	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R4911	1-208-818-11	METAL CHIP	33K	0.5%	1/10W
R4912	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R4913	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R4914	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
		<CRYSTAL>			
X4300	1-767-127-11	VIBRATOR, CERAMIC			
**********					
*	A-1241-414-A	F1 BOARD MOUNTED (KV-ES29N90)			
*	A-1241-415-A	F1 BOARD MOUNTED (KV-ES29M61)			
		**********			
	1-533-223-11	HOLDER, FUSE			
*	4-374-846-01	COVER, CAPACITOR, CAP TYPE			
		<CAPACITOR>			
C1601 ⚠	1-104-708-51	MYLAR	0.47MF	20%	250V
C1602 ⚠	1-109-835-51	MYLAR	0.68MF	20%	250V
C1603 ⚠	1-117-703-51	CERAMIC	0.0047MF	99%	250V
		<CONNECTOR>			
CN1601*⚠	1-580-843-11	PIN, CONNECTOR (POWER)			
CN1602*⚠	1-580-843-11	PIN, CONNECTOR (POWER)			
CN1603	1-695-915-11	TAB (CONTACT)			
CN1604	1-695-915-11	TAB (CONTACT)			
		<FUSE>			
F1601 ⚠	1-532-299-11	FUSE, TIME-LAG 5A/250V			
		<FERRITE BEAD>			
FB1601	1-410-397-21	FERRITE	1.1UH		
FB1602	1-410-397-21	FERRITE	1.1UH		
FB1603	1-410-397-21	FERRITE	1.1UH		
FB1604	1-410-397-21	FERRITE	1.1UH		
		<RESISTOR>			
R1601 ⚠	1-202-885-91	SOLID	1M	10%	1/2W
		<TRANSFORMER>			
T1601 ⚠	1-433-900-11	TRANSFORMER, LINE FILTER			
T1602 ⚠	1-433-900-11	TRANSFORMER, LINE FILTER			

REF. NO.	PART NO.	DESCRIPTION			REMARK
		<VARISTOR>			
VDR161	1-801-451-31	VARISTOR TNR14V271K660 (KV-ES29N90)			
VDR161	1-803-830-11	VARISTOR (ERZV14D621) (KV-ES29M61)			
**********					
*	A-1241-403-A	F2 BOARD MOUNTED (KV-ES29N90)			
*	A-1241-416-A	F2 BOARD MOUNTED (KV-ES29M61)			
		**********			
		<CONNECTOR>			
CN1651*	1-580-843-11	PIN, CONNECTOR (POWER)			
CN1652*	1-691-291-11	PIN, CONNECTOR (PC BOARD) 5P			
		<SWITCH>			
S1651 ⚠	1-571-433-31	SWITCH, PUSH (AC POWER)			
**********					
*	A-1372-728-A	H1 BOARD MOUNTED (KV-ES29N90)			
*	A-1372-784-A	H1 BOARD MOUNTED (KV-ES29M61)			
		**********			
*	4-055-304-01	HOLDER, LED			
		<CAPACITOR>			
C1910	1-104-664-11	ELECT	47MF	20%	16V
C1911	1-104-664-11	ELECT	47MF	20%	16V
C1912	1-102-824-00	CERAMIC	470PF	5%	50V
		<CONNECTOR>			
CN1901*	1-564-520-11	PLUG, CONNECTOR 5P			
		<DIODE>			
D1906	8-719-045-19	DIODE SPB-26MVWF			
		<IC>			
IC1901	8-742-134-00	HYB IC SBX1981-51P			
		<TRANSISTOR>			
Q1901	8-729-030-02	TRANSISTOR DTC144ESA			
Q1902	8-729-030-02	TRANSISTOR DTC144ESA			
		<RESISTOR>			
R1911	1-249-411-11	CARBON	330	5%	1/4W
R1913	1-249-429-11	CARBON	10K	5%	1/4W

H1 H2 H3 J

REF. NO.	PART NO.	DESCRIPTION			REMARK
R1914	1-249-411-11	CARBON	330	5%	1/4W
R1915	1-249-429-11	CARBON	10K	5%	1/4W
R1916	1-249-401-11	CARBON	47	5%	1/4W
R1917	1-247-807-31	CARBON	100	5%	1/4W
R1920	1-247-807-31	CARBON	100	5%	1/4W
R1921	1-247-807-31	CARBON	100	5%	1/4W

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* A-1372-729-A H2 BOARD MOUNTED (KV-ES29N90)
* A-1372-785-A H2 BOARD MOUNTED (KV-ES29M61)
****

<CAPACITOR>

C1930	1-136-153-00	MYLAR	0.01MF	5%	50V
C1932	1-136-153-00	MYLAR	0.01MF	5%	50V
C1935	1-102-824-00	CERAMIC	470PF	5%	50V
C1938	1-102-824-00	CERAMIC	470PF	5%	50V

<CONNECTOR>

CN1932*	1-564-509-11	PLUG, CONNECTOR 6P
CN1934*	1-564-515-11	PLUG, CONNECTOR 12P

<DIODE>

D1930	8-719-121-26	DIODE RD9.1ESL2
D1935	8-719-121-26	DIODE RD9.1ESL2

<JACK>

J1931	1-770-786-11	JACK
J1932	1-537-744-11	TERMINAL, S
J1933	1-770-329-11	JACK, PIN 3P

<COIL>

L1931	1-408-603-31	INDUCTOR	10UH		
L1932	1-408-603-31	INDUCTOR	10UH		

<RESISTOR>

R1933	1-247-895-91	CARBON	470K	5%	1/4W
R1934	1-247-807-31	CARBON	100	5%	1/4W
R1935	1-247-807-31	CARBON	100	5%	1/4W
R1936	1-247-895-91	CARBON	470K	5%	1/4W
R1952	1-249-421-11	CARBON	2.2K	5%	1/4W

<SWITCH>

S1931	1-692-431-21	SWITCH, TACTILE

****

REF. NO.	PART NO.	DESCRIPTION			REMARK
	* A-1372-730-A	H3 BOARD MOUNTED (KV-ES29N90)			
	* A-1372-786-A	H3 BOARD MOUNTED (KV-ES29M61)			
		**********			

<CONNECTOR>

CN1980*	1-564-518-11	PLUG, CONNECTOR 3P

<RESISTOR>

R1970	1-249-416-11	CARBON	820	5%	1/4W
R1971	1-249-417-11	CARBON	1K	5%	1/4W
R1972	1-249-418-11	CARBON	1.2K	5%	1/4W
R1973	1-249-420-11	CARBON	1.8K	5%	1/4W
R1974	1-247-843-11	CARBON	3.3K	5%	1/4W
R1975	1-249-427-11	CARBON	6.8K	5%	1/4W
R1976	1-249-432-11	CARBON	18K	5%	1/4W

<SWITCH>

S1972	1-572-198-11	SWITCH, KEYBOARD
S1973	1-572-198-11	SWITCH, KEYBOARD
S1974	1-572-198-11	SWITCH, KEYBOARD
S1975	1-572-198-11	SWITCH, KEYBOARD
S1976	1-572-198-11	SWITCH, KEYBOARD
S1977	1-572-198-11	SWITCH, KEYBOARD
S1978	1-572-198-11	SWITCH, KEYBOARD
S1979	1-572-198-11	SWITCH, KEYBOARD

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* A-1394-979-A J BOARD COMPLETE (KV-ES29N90)
* A-1394-981-A J BOARD COMPLETE (KV-ES29M61)
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3-350-679-01 WASHER, FIBER

<CAPACITOR>

C8300	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C8301	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C8302	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C8303	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C8304	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C8305	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C8306	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C8307	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C8308	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C8309	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C8310	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C8311	1-164-346-11	CERAMIC CHIP	1MF		16V
C8312	1-164-346-11	CERAMIC CHIP	1MF		16V
C8313	1-164-346-11	CERAMIC CHIP	1MF		16V
C8314	1-164-346-11	CERAMIC CHIP	1MF		16V
C8315	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C8316	1-163-133-00	CERAMIC CHIP	470PF	5%	50V

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REF. NO.	PART NO.	DESCRIPTION			REMARK
C8317	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8318	1-164-346-11	CERAMIC CHIP	1MF		16V
C8319	1-164-346-11	CERAMIC CHIP	1MF		16V
C8320	1-117-720-11	CERAMIC CHIP	4.7MF		10V
C8321	1-117-720-11	CERAMIC CHIP	4.7MF		10V
C8322	1-164-346-11	CERAMIC CHIP	1MF		16V
C8323	1-164-346-11	CERAMIC CHIP	1MF		16V
C8324	1-117-720-11	CERAMIC CHIP	4.7MF		10V
C8325	1-126-935-11	ELECT	470MF	20%	16V
C8326	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C8327	1-164-346-11	CERAMIC CHIP	1MF		16V
C8328	1-164-346-11	CERAMIC CHIP	1MF		16V
C8329	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C8330	1-164-346-11	CERAMIC CHIP	1MF		16V
C8331	1-164-346-11	CERAMIC CHIP	1MF		16V
C8332	1-163-249-11	CERAMIC CHIP (KV-ES29M61 ONLY)	82PF	5%	50V
C8333	1-115-340-11	CERAMIC CHIP	0.22MF	10%	25V
C8334	1-104-664-11	ELECT	47MF	20%	16V
C8335	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8336	1-104-664-11	ELECT	47MF	20%	16V
C8337	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8338	1-164-346-11	CERAMIC CHIP	1MF		16V
C8339	1-164-346-11	CERAMIC CHIP	1MF		16V
C8340	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C8341	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C8342	1-126-964-11	ELECT	10MF	20%	50V
C8343	1-104-664-11	ELECT	47MF	20%	16V
C8344	1-163-021-91	CERAMIC CHIP (KV-ES29M61 ONLY)	0.01MF	10%	50V
C8346	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8347	1-164-004-11	CERAMIC CHIP (KV-ES29M61 ONLY)	0.1MF	10%	25V
C8348	1-126-968-11	ELECT (KV-ES29M61 ONLY)	100MF	20%	16V
C8349	1-117-720-11	CERAMIC CHIP	4.7MF		10V
C8352	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C8353	1-115-340-11	CERAMIC CHIP	0.22MF	10%	25V
C8354	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C8355	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C8356	1-164-346-11	CERAMIC CHIP	1MF		16V
C8357	1-163-021-91	CERAMIC CHIP (KV-ES29M61 ONLY)	0.01MF	10%	50V
C8358	1-164-346-11	CERAMIC CHIP (KV-ES29M61 ONLY)	1MF		16V
C8359	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C8360	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C8361	1-126-961-11	ELECT	2.2MF	20%	50V
C8362	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8363	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8364	1-104-664-11	ELECT	47MF	20%	16V
C8365	1-104-664-11	ELECT	47MF	20%	16V
C8366	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C8367	1-104-664-11	ELECT	47MF	20%	16V
C8368	1-104-664-11	ELECT	47MF	20%	16V
C8369	1-104-664-11	ELECT	47MF	20%	16V
C8370	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V

REF. NO.	PART NO.	DESCRIPTION			REMARK
C8371	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8372	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8373	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C8374	1-164-346-11	CERAMIC CHIP	1MF		16V
C8375	1-126-964-11	ELECT	10MF	20%	50V
C8376	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8381	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C8382	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8386	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C8390	1-126-963-11	ELECT	4.7MF	20%	50V
C8391	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8392	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8393	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8396	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C8399	1-126-961-11	ELECT	2.2MF	20%	50V
C8401	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C8402	1-164-346-11	CERAMIC CHIP	1MF		16V
C8403	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C8406	1-104-664-11	ELECT	47MF	20%	16V
C8407	1-104-664-11	ELECT	47MF	20%	16V
C8408	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C8410	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8411	1-117-720-11	CERAMIC CHIP	4.7MF		10V
C8412	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8413	1-117-720-11	CERAMIC CHIP	4.7MF		10V
C8414	1-104-664-11	ELECT	47MF	20%	16V
C8415	1-164-346-11	CERAMIC CHIP	1MF		16V
C8416	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8417	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C8418	1-126-964-11	ELECT	10MF	20%	50V
C8419	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8424	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C8425	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C8430	1-117-720-11	CERAMIC CHIP	4.7MF		10V
C8431	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C8432	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C8437	1-126-963-11	ELECT	4.7MF	20%	50V
C8438	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8439	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8440	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8441	1-164-346-11	CERAMIC CHIP	1MF		16V
C8442	1-117-720-11	CERAMIC CHIP	4.7MF		10V
C8443	1-117-720-11	CERAMIC CHIP	4.7MF		10V
C8444	1-117-720-11	CERAMIC CHIP	4.7MF		10V
C8445	1-164-346-11	CERAMIC CHIP	1MF		16V
C8446	1-104-664-11	ELECT	47MF	20%	16V
C8447	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8448	1-164-690-91	CERAMIC CHIP	0.0022MF	5%	50V
C8450	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C8451	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C8452	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8453	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8454	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8455	1-104-664-11	ELECT	47MF	20%	16V
C8456	1-104-664-11	ELECT	47MF	20%	16V
C8457	1-104-664-11	ELECT	47MF	20%	16V
C8459	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V

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REF. NO.	PART NO.	DESCRIPTION			REMARK
C8464	1-104-664-11	ELECT	47MF	20%	16V
C8465	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8466	1-247-807-31	CARBON	100	5%	1/4W
C8468	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8469	1-247-807-31	CARBON	100	5%	1/4W
C8471	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C8474	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
		<CONNECTOR>			
CN8301*	1-564-524-11	PLUG, CONNECTOR 9P			
CN8302	1-695-915-11	TAB (CONTACT)			
CN8304	1-793-498-11	CONNECTOR, BOARD TO BOARD 50P			
		<DIODE>			
D8101	8-719-073-01	DIODE MA111-(K8).S0			
D8102	1-216-295-91	SHORT	0		
D8301	8-719-158-35	DIODE RD9.1SB			
D8302	8-719-158-35	DIODE RD9.1SB			
D8303	8-719-158-35	DIODE RD9.1SB			
D8304	8-719-158-35	DIODE RD9.1SB			
D8305	8-719-158-35	DIODE RD9.1SB			
D8306	8-719-158-35	DIODE RD9.1SB			
D8307	8-719-158-35	DIODE RD9.1SB			
D8308	8-719-158-35	DIODE RD9.1SB			
D8309	8-719-158-35	DIODE RD9.1SB			
D8310	8-719-158-35	DIODE RD9.1SB			
D8311	8-719-158-35	DIODE RD9.1SB			
D8312	8-719-158-35	DIODE RD9.1SB			
D8313	8-719-158-35	DIODE RD9.1SB			
D8314	8-719-158-35	DIODE RD9.1SB			
D8315	8-719-067-40	DIODE STZ6.8N-T146			
D8316	8-719-067-40	DIODE STZ6.8N-T146			
D8317	8-719-067-40	DIODE STZ6.8N-T146			
D8318	8-719-158-35	DIODE RD9.1SB			
D8319	8-719-158-35	DIODE RD9.1SB			
D8320	8-719-158-35	DIODE RD9.1SB			
D8321	8-719-158-35	DIODE RD9.1SB			
D8322	8-719-158-35	DIODE RD9.1SB			
D8323	8-719-158-35	DIODE RD9.1SB			
D8324	8-719-158-35	DIODE RD9.1SB			
D8325	8-719-158-35	DIODE RD9.1SB			
D8331	8-719-041-97	DIODE MA113-(TX)			
		<FILTER>			
FB8101	1-414-598-11	INDUCTOR CHIP OUH			
FL8301	1-236-071-11	ENCAPSULATED COMPONENT			
FL8303	1-236-071-11	ENCAPSULATED COMPONENT			
FL8304	1-236-071-11	ENCAPSULATED COMPONENT			
FL8305	1-236-071-11	ENCAPSULATED COMPONENT			
FL8307	1-236-071-11	ENCAPSULATED COMPONENT			
FL8308	1-236-071-11	ENCAPSULATED COMPONENT			
FL8309	1-236-071-11	ENCAPSULATED COMPONENT			
FL8311	1-236-071-11	ENCAPSULATED COMPONENT			
FL8312	1-236-071-11	ENCAPSULATED COMPONENT			
FL8313	1-236-071-11	ENCAPSULATED COMPONENT			
FL8314	1-233-877-11	FILTER, LOW PASS			
FL8315	1-233-504-21	FILTER, LOW PASS			
FL8316	1-233-504-21	FILTER, LOW PASS			
		<IC>			
IC8101	8-759-100-96	IC UPC4558G2 (KV-ES29M61 ONLY)			
IC8302	8-752-080-04	IC CXA2069Q			
IC8304	8-759-576-72	IC LF50CDT-TR			
IC8305	8-759-576-74	IC LF90CDT-TR			
IC8306	8-752-094-47	IC CXA2123AQ-T6			
IC8308	8-752-094-47	IC CXA2123AQ-T6			
IC8309	8-759-337-26	IC MM1115XFBE			
IC8310	8-759-572-04	IC TDA9178T/N1.118			
IC8311	8-759-485-79	IC TC7SET08FU(TE85L)			
IC8312	8-759-485-79	IC TC7SET08FU(TE85L)			
IC8314	8-742-175-00	HYB IC SBX3005-11 (KV-ES29M61 ONLY)			
		<JACK>			
J8106	1-793-787-11	JACK BLOCK, IP			
J8301	1-774-748-11	TERMINAL BLOCK, S			
J8302	1-774-746-11	JACK BLOCK, PIN			
J8303	1-774-746-11	JACK BLOCK, PIN			
J8304	1-774-746-11	JACK BLOCK, PIN			
J8305	1-695-444-11	PIN JACK BLOCK 3P			
J8307	1-565-838-11	JACK BLOCK, PIN 2P			
		<CHIP CONDUCTOR>			
JR8301	1-216-295-91	SHORT	0		
JR8302	1-216-295-91	SHORT	0		
JR8303	1-216-295-91	SHORT	0 (KV-ES29M61 ONLY)		
JR8304	1-216-295-91	SHORT	0 (KV-ES29M61 ONLY)		
		<COIL>			
L8302	1-414-196-41	INDUCTOR	47UH		
L8303	1-414-196-41	INDUCTOR	47UH		
L8304	1-414-196-41	INDUCTOR	47UH		
		<TRANSISTOR>			
Q8301	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8302	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8303	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8304	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8305	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8306	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8307	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8308	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8309	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8310	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8312	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8313	8-729-230-49	TRANSISTOR 2SC2712-YG (KV-ES29M61 ONLY)			
Q8319	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			

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REF. NO.	PART NO.	DESCRIPTION			REMARK
Q8320	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8321	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8322	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8323	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8324	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8325	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8326	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8327	1-801-806-11	TRANSISTOR DTC144EKA-T146			
Q8328	1-801-806-11	TRANSISTOR DTC144EKA-T146			
Q8329	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8330	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8331	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8332	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8333	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8334	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8335	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8336	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8337	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8342	8-729-230-49	TRANSISTOR 2SC2712-YG (KV-ES29M61 ONLY)			
Q8343	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R (KV-ES29M61 ONLY)			
Q8344	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8345	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8346	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8347	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8348	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8349	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8350	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8351	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8352	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8353	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8354	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8355	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q8358	1-801-806-11	TRANSISTOR DTC144EKA-T146			
Q8359	1-801-806-11	TRANSISTOR DTC144EKA-T146			
Q8360	1-801-806-11	TRANSISTOR DTC144EKA-T146			
Q8361	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8362	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8363	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8464	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8465	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8466	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q8512	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R (KV-ES29M61 ONLY)			
		<RESISTOR>			
R8101	1-216-022-00	RES, CHIP	75	5%	1/10W
R8208	1-216-295-91	SHORT	0		
R8209	1-216-295-91	SHORT	0		
R8301	1-216-041-00	RES,CHIP	470	5%	1/10W
R8302	1-216-041-00	RES,CHIP	470	5%	1/10W
R8303	1-216-021-00	RES,CHIP	68	5%	1/10W
R8304	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R8305	1-216-113-00	RES,CHIP	470K	5%	1/10W
R8306	1-216-022-00	RES,CHIP	75	5%	1/10W
R8307	1-216-022-00	RES,CHIP	75	5%	1/10W

REF. NO.	PART NO.	DESCRIPTION			REMARK
R8308	1-216-105-91	RES,CHIP	220K	5%	1/10W
R8309	1-216-105-91	RES,CHIP	220K	5%	1/10W
R8310	1-216-022-00	RES,CHIP	75	5%	1/10W
R8311	1-216-105-91	RES,CHIP	220K	5%	1/10W
R8312	1-216-105-91	RES,CHIP	220K	5%	1/10W
R8313	1-216-022-00	RES,CHIP	75	5%	1/10W
R8314	1-216-105-91	RES,CHIP	220K	5%	1/10W
R8315	1-216-105-91	RES,CHIP	220K	5%	1/10W
R8316	1-216-113-00	RES,CHIP	470K	5%	1/10W
R8317	1-216-022-00	RES,CHIP	75	5%	1/10W
R8318	1-216-022-00	RES,CHIP	75	5%	1/10W
R8319	1-216-022-00	RES,CHIP	75	5%	1/10W
R8320	1-216-105-91	RES,CHIP	220K	5%	1/10W
R8321	1-216-105-91	RES,CHIP	220K	5%	1/10W
R8322	1-216-022-00	RES,CHIP	75	5%	1/10W
R8323	1-216-295-91	SHORT	0		
R8324	1-216-295-91	SHORT	0		
R8325	1-216-295-91	SHORT	0		
R8326	1-216-113-00	RES,CHIP	470K	5%	1/10W
R8327	1-216-295-91	SHORT	0		
R8328	1-216-113-00	RES,CHIP	470K	5%	1/10W
R8329	1-216-113-00	RES,CHIP	470K	5%	1/10W
R8330	1-216-022-00	RES,CHIP	75	5%	1/10W
R8331	1-216-295-91	SHORT	0		
R8332	1-216-295-91	SHORT	0		
R8333	1-216-295-91	SHORT	0		
R8334	1-216-295-91	SHORT	0		
R8335	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R8336	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R8337	1-216-022-00	RES,CHIP	75	5%	1/10W
R8338	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R8339	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R8340	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R8341	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R8342	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R8343	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R8344	1-216-022-00	RES,CHIP	75	5%	1/10W
R8348	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R8349	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8350	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8351	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R8352	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R8353	1-216-017-91	RES,CHIP	47	5%	1/10W
R8354	1-216-017-91	RES,CHIP (KV-ES29M61 ONLY)	47	5%	1/10W
R8355	1-216-295-91	SHORT	0		
R8356	1-216-295-91	SHORT	0		
R8357	1-216-017-91	RES,CHIP	47	5%	1/10W
R8358	1-216-017-91	RES,CHIP	47	5%	1/10W
R8361	1-216-017-91	RES,CHIP	47	5%	1/10W
R8362	1-216-017-91	RES,CHIP (KV-ES29M61 ONLY)	47	5%	1/10W
R8363	1-208-773-11	METAL CHIP	430	0.50%	1/10W
R8364	1-216-041-00	RES,CHIP	470	5%	1/10W
R8365	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8366	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8367	1-216-041-00	RES,CHIP	470	5%	1/10W

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R8369	1-216-041-00	RES,CHIP	470	5%	1/10W
R8370	1-216-025-91	RES,CHIP	100	5%	1/10W
R8372	1-216-295-91	SHORT	0		
R8373	1-216-295-91	SHORT	0		
R8374	1-216-039-00	RES,CHIP	390	5%	1/10W
R8375	1-216-041-00	RES,CHIP	470	5%	1/10W
R8376	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8377	1-216-025-91	RES,CHIP	100	5%	1/10W
R8378	1-216-033-00	RES,CHIP	220	5%	1/10W
R8379	1-216-033-00	RES,CHIP	220	5%	1/10W
R8380	1-216-025-91	RES,CHIP	100	5%	1/10W
R8381	1-216-025-91	RES,CHIP	100	5%	1/10W
R8382	1-216-033-00	RES,CHIP	220	5%	1/10W
R8383	1-216-033-00	RES,CHIP	220	5%	1/10W
R8384	1-216-025-91	RES,CHIP	100	5%	1/10W
R8385	1-216-025-91	RES,CHIP	100	5%	1/10W
R8386	1-216-025-91	RES,CHIP	100	5%	1/10W
R8388	1-216-031-00	RES,CHIP	180	5%	1/10W
R8389	1-216-033-00	RES,CHIP	220	5%	1/10W
R8390	1-208-773-11	METAL CHIP (KV-ES29M61 ONLY)	430	0.50%	1/10W
R8391	1-216-041-00	RES,CHIP (KV-ES29M61 ONLY)	470	5%	1/10W
R8393	1-216-037-00	RES,CHIP (KV-ES29M61 ONLY)	330	5%	1/10W
R8394	1-216-041-00	RES,CHIP (KV-ES29M61 ONLY)	470	5%	1/10W
R8395	1-216-033-00	RES,CHIP	220	5%	1/10W
R8396	1-216-033-00	RES,CHIP	220	5%	1/10W
R8398	1-216-025-91	RES,CHIP (KV-ES29M61 ONLY)	100	5%	1/10W
R8399	1-216-025-91	RES,CHIP	100	5%	1/10W
R8400	1-216-025-91	RES,CHIP	100	5%	1/10W
R8401	1-216-081-00	RES,CHIP (KV-ES29M61 ONLY)	22K	5%	1/10W
R8404	1-216-033-00	RES,CHIP (KV-ES29M61 ONLY)	220	5%	1/10W
R8405	1-216-033-00	RES,CHIP	220	5%	1/10W
R8406	1-216-033-00	RES,CHIP	220	5%	1/10W
R8407	1-216-033-00	RES,CHIP	220	5%	1/10W
R8408	1-216-033-00	RES,CHIP	220	5%	1/10W
R8409	1-216-295-91	SHORT	0		
R8410	1-216-295-91	SHORT	0		
R8411	1-216-083-00	RES,CHIP	27K	5%	1/10W
R8412	1-216-073-00	RES,CHIP (KV-ES29M61 ONLY)	10K	5%	1/10W
R8413	1-216-041-00	RES,CHIP (KV-ES29M61 ONLY)	470	5%	1/10W
R8414	1-208-796-11	METAL CHIP	3.9K	0.50%	1/10W
R8415	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8417	1-216-025-91	RES,CHIP	100	5%	1/10W
R8418	1-216-025-91	RES,CHIP	100	5%	1/10W
R8419	1-216-017-91	RES,CHIP	47	5%	1/10W
R8420	1-216-017-91	RES,CHIP	47	5%	1/10W
R8421	1-216-295-91	SHORT	0		
R8422	1-216-295-91	SHORT	0		
R8424	1-216-083-00	RES,CHIP	27K	5%	1/10W
R8425	1-216-089-91	RES,CHIP	47K	5%	1/10W
R8426	1-208-796-11	METAL CHIP	3.9K	0.50%	1/10W

REF. NO.	PART NO.	DESCRIPTION			REMARK
R8428	1-216-295-91	SHORT	0		
R8429	1-216-295-91	SHORT	0		
R8430	1-216-295-91	SHORT	0		
R8431	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8432	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8433	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8434	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8435	1-216-295-91	SHORT	0		
R8436	1-216-017-91	RES,CHIP	47	5%	1/10W
R8440	1-216-295-91	SHORT	0		
R8441	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8442	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8443	1-216-025-91	RES,CHIP	100	5%	1/10W
R8444	1-216-025-91	RES,CHIP	100	5%	1/10W
R8445	1-216-017-91	RES,CHIP	47	5%	1/10W
R8446	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8447	1-216-025-91	RES,CHIP	100	5%	1/10W
R8448	1-216-025-91	RES,CHIP	100	5%	1/10W
R8449	1-216-025-91	RES,CHIP	100	5%	1/10W
R8450	1-216-089-91	RES,CHIP	47K	5%	1/10W
R8451	1-216-097-91	RES,CHIP	100K	5%	1/10W
R8452	1-216-089-91	RES,CHIP	47K	5%	1/10W
R8453	1-216-097-91	RES,CHIP	100K	5%	1/10W
R8454	1-216-089-91	RES,CHIP	47K	5%	1/10W
R8455	1-216-097-91	RES,CHIP	100K	5%	1/10W
R8456	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8457	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8458	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8459	1-216-025-91	RES,CHIP	100	5%	1/10W
R8460	1-216-025-91	RES,CHIP	100	5%	1/10W
R8461	1-216-025-91	RES,CHIP	100	5%	1/10W
R8462	1-216-089-91	RES,CHIP	47K	5%	1/10W
R8463	1-216-097-91	RES,CHIP	100K	5%	1/10W
R8464	1-216-025-91	RES,CHIP	100	5%	1/10W
R8465	1-216-025-91	RES,CHIP	100	5%	1/10W
R8466	1-216-025-91	RES,CHIP	100	5%	1/10W
R8467	1-216-041-00	RES,CHIP	470	5%	1/10W
R8468	1-216-041-00	RES,CHIP	470	5%	1/10W
R8469	1-216-041-00	RES,CHIP	470	5%	1/10W
R8470	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R8471	1-216-025-91	RES,CHIP	100	5%	1/10W
R8472	1-216-089-91	RES,CHIP	47K	5%	1/10W
R8473	1-216-025-91	RES,CHIP	100	5%	1/10W
R8474	1-216-097-91	RES,CHIP	100K	5%	1/10W
R8475	1-216-089-91	RES,CHIP	47K	5%	1/10W
R8476	1-216-031-00	RES,CHIP	180	5%	1/10W
R8477	1-216-033-00	RES,CHIP	220	5%	1/10W
R8478	1-216-089-91	RES,CHIP	47K	5%	1/10W
R8479	1-216-097-91	RES,CHIP	100K	5%	1/10W
R8480	1-216-073-00	RES,CHIP	10K	5%	1/10W
R8481	1-216-095-00	RES,CHIP	82K	5%	1/10W
R8482	1-216-089-91	RES,CHIP	47K	5%	1/10W
R8484	1-216-045-00	RES,CHIP	680	5%	1/10W
R8485	1-216-037-00	RES,CHIP	330	5%	1/10W
R8486	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8487	1-216-045-00	RES,CHIP	680	5%	1/10W
R8488	1-216-041-00	RES,CHIP	470	5%	1/10W

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R8489	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8490	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8491	1-216-025-91	RES,CHIP	100	5%	1/10W
R8492	1-216-041-00	RES,CHIP	470	5%	1/10W
R8493	1-216-081-00	RES,CHIP	22K	5%	1/10W
R8494	1-216-041-00	RES,CHIP	470	5%	1/10W
R8495	1-216-081-00	RES,CHIP	22K	5%	1/10W
R8496	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8497	1-216-025-91	RES,CHIP	100	5%	1/10W
R8498	1-216-043-91	RES,CHIP	560	5%	1/10W
R8499	1-216-081-00	RES,CHIP	22K	5%	1/10W
R8500	1-216-033-00	RES,CHIP	220	5%	1/10W
R8501	1-216-081-00	RES,CHIP	22K	5%	1/10W
R8502	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8503	1-216-097-91	RES,CHIP	100K	5%	1/10W
R8504	1-216-295-91	SHORT	0		
R8507	1-216-025-91	RES,CHIP	100	5%	1/10W
R8508	1-216-025-91	RES,CHIP	100	5%	1/10W
R8509	1-216-025-91	RES,CHIP	100	5%	1/10W
R8510	1-216-041-00	RES,CHIP	470	5%	1/10W
		(KV-ES29M61 ONLY)			
R8511	1-216-041-00	RES,CHIP	470	5%	1/10W
R8512	1-216-017-91	RES,CHIP	47	5%	1/10W
R8513	1-216-039-00	RES,CHIP	390	5%	1/10W
R8514	1-216-039-00	RES,CHIP	390	5%	1/10W
R8515	1-216-295-91	SHORT	0		
R8516	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8518	1-216-047-91	RES,CHIP	820	5%	1/10W
R8519	1-216-047-91	RES,CHIP	820	5%	1/10W
R8522	1-216-041-00	RES,CHIP	470	5%	1/10W
R8524	1-216-041-00	RES,CHIP	470	5%	1/10W
R8525	1-216-033-00	RES,CHIP	220	5%	1/10W
R8528	1-216-025-91	RES,CHIP	100	5%	1/10W
R8530	1-216-041-00	RES,CHIP	470	5%	1/10W
R8532	1-216-041-00	RES,CHIP	470	5%	1/10W
R8533	1-216-041-00	RES,CHIP	470	5%	1/10W
R8536	1-216-025-91	RES,CHIP	100	5%	1/10W
R8538	1-216-041-00	RES,CHIP	470	5%	1/10W
R8540	1-216-041-00	RES,CHIP	470	5%	1/10W
R8541	1-216-039-00	RES,CHIP	390	5%	1/10W
R8544	1-216-041-00	RES,CHIP	470	5%	1/10W
R8547	1-216-295-91	SHORT	0		
R8548	1-216-033-00	RES,CHIP	220	5%	1/10W
R8551	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8556	1-216-025-91	RES,CHIP	100	5%	1/10W
R8557	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8558	1-208-776-11	METAL CHIP	560	0.50%	1/10W
R8560	1-216-025-91	RES,CHIP	100	5%	1/10W
R8561	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8562	1-208-776-11	METAL CHIP	560	0.50%	1/10W
R8564	1-216-025-91	RES,CHIP	100	5%	1/10W
R8565	1-216-049-91	RES,CHIP	1K	5%	1/10W
R8566	1-208-776-11	METAL CHIP	560	0.50%	1/10W
R8567	1-216-017-91	RES,CHIP	47	5%	1/10W
R8569	1-208-800-11	METAL CHIP	5.6K	0.50%	1/10W
R8570	1-216-017-91	RES,CHIP	47	5%	1/10W
R8572	1-208-800-11	METAL CHIP	5.6K	0.50%	1/10W

REF. NO.	PART NO.	DESCRIPTION			REMARK
R8573	1-216-017-91	RES,CHIP	47	5%	1/10W
R8575	1-208-800-11	METAL CHIP	5.6K	0.50%	1/10W
R8576	1-216-013-00	RES,CHIP	33	5%	1/10W
R8577	1-216-295-91	SHORT	0		
R8578	1-216-033-00	RES,CHIP	220	5%	1/10W
R8579	1-216-295-91	SHORT	0		
R8582	1-208-291-11	RES,CHIP	4.7M	5%	1/10W
R8583	1-208-291-11	RES,CHIP	4.7M	5%	1/10W
		(KV-ES29M61 ONLY)			
R8584	1-208-291-11	RES,CHIP	4.7M	5%	1/10W
R8585	1-208-291-11	RES,CHIP	4.7M	5%	1/10W
R8586	1-208-291-11	RES,CHIP	4.7M	5%	1/10W
R8587	1-216-295-91	SHORT	0		
R8588	1-216-041-00	RES,CHIP	470	5%	1/10W
R8589	1-216-041-00	RES,CHIP	470	5%	1/10W
R8590	1-216-041-00	RES,CHIP	470	5%	1/10W
R8592	1-216-295-91	SHORT	0 (KV-ES29M61 ONLY)		
R8594	1-216-295-91	SHORT	0 (KV-ES29M61 ONLY)		
R8595	1-216-041-00	RES,CHIP	470	5%	1/10W
		(KV-ES29M61 ONLY)			
R8596	1-216-041-00	RES,CHIP	470	5%	1/10W
		(KV-ES29M61 ONLY)			
R8597	1-216-041-00	RES,CHIP	470	5%	1/10W
		(KV-ES29M61 ONLY)			
		<CRYSTAL>			
X8301	1-781-612-11	VIBRATOR, CRYSTAL			
X8302	1-781-612-11	VIBRATOR, CRYSTAL			

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* A-1342-535-A V BOARD MOUNTED (KV-ES29M61 ONLY)
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<CAPACITOR>

C1803	1-104-665-11	ELECT	100MF	20%	16V
C1804	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C1805	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C1806	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C1807	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C1808	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C1809	1-104-665-11	ELECT	100MF	20%	16V
C1810	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C1811	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C1812	1-104-665-11	ELECT	100MF	20%	16V
C1813	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C1815	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C1819	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C1821	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C1822	1-104-666-11	ELECT	220MF	20%	16V
C1824	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C1826	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C1827	1-104-666-11	ELECT	220MF	20%	16V
C1828	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V

V (KV-ES29M61) VM

REF. NO.	PART NO.	DESCRIPTION			REMARK
C1829	1-163-021-91	CERAMIC CHIP	0.01MF	10% 50V	
		<CONNECTOR>			
CN1801	1-793-496-11	CONNECTOR, BOARD TO BOARD 20P			
		<DIODE>			
D1802	8-719-073-01	DIODE MA111-(K8).S0			
D1803	8-719-073-01	DIODE MA111-(K8).S0			
D1809	8-719-073-01	DIODE MA111-(K8).S0			
D1810	8-719-073-01	DIODE MA111-(K8).S0			
		<FERRITE BEAD>			
FB1801	1-410-397-21	FERRITE	1.1UH		
FB1802	1-410-397-21	FERRITE	1.1UH		
FB1803	1-410-397-21	FERRITE	1.1UH		
FB1804	1-410-397-21	FERRITE	1.1UH		
FB1805	1-410-397-21	FERRITE	1.1UH		
		<IC>			
IC1801	8-759-652-13	IC SDA5254-2B006			
IC1802	8-759-239-14	IC TA78L05S			
IC1803	8-759-042-02	IC S-80743AL-A7-S			
		<COIL>			
L1801	1-408-602-31	INDUCTOR	8.2UH		
		<TRANSISTOR>			
Q1802	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q1803	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q1804	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q1805	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q1806	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
		<RESISTOR>			
R1804	1-208-792-11	METAL CHIP	2.7K	0.50% 1/10W	
R1805	1-216-025-91	RES,CHIP	100	5% 1/10W	
R1806	1-216-025-91	RES,CHIP	100	5% 1/10W	
R1807	1-208-816-11	METAL CHIP	27K	0.50% 1/10W	
R1808	1-216-025-91	RES,CHIP	100	5% 1/10W	
R1809	1-208-758-11	METAL CHIP	100	0.50% 1/10W	
R1811	1-208-758-11	METAL CHIP	100	0.50% 1/10W	
R1812	1-216-295-91	SHORT	0		
R1813	1-208-758-11	METAL CHIP	100	0.50% 1/10W	
R1814	1-216-295-91	SHORT	0		
R1815	1-216-295-91	SHORT	0		
R1816	1-216-295-91	SHORT	0		
R1820	1-216-121-91	RES,CHIP	1M	5% 1/10W	
R1821	1-216-041-00	RES,CHIP	470	5% 1/10W	
R1822	1-216-025-91	RES,CHIP	100	5% 1/10W	
R1823	1-216-089-91	RES,CHIP	47K	5% 1/10W	
R1824	1-216-049-91	RES,CHIP	1K	5% 1/10W	

REF. NO.	PART NO.	DESCRIPTION			REMARK
R1825	1-216-041-00	RES,CHIP	470	5% 1/10W	
R1826	1-216-049-91	RES,CHIP	1K	5% 1/10W	
R1827	1-216-037-00	RES,CHIP	330	5% 1/10W	
R1829	1-216-053-00	RES,CHIP	1.5K	5% 1/10W	
R1830	1-216-063-91	RES,CHIP	3.9K	5% 1/10W	
R1831	1-216-073-00	RES,CHIP	10K	5% 1/10W	
R1832	1-215-859-00	METAL OXIDE	22	5% 1W F	
R1833	1-216-065-91	RES,CHIP	4.7K	5% 1/10W	
R1834	1-216-065-91	RES,CHIP	4.7K	5% 1/10W	
R1835	1-216-049-91	RES,CHIP	1K	5% 1/10W	
R1836	1-216-049-91	RES,CHIP	1K	5% 1/10W	
R1837	1-216-049-91	RES,CHIP	1K	5% 1/10W	
R1838	1-216-025-91	RES,CHIP	100	5% 1/10W	
R1839	1-216-025-91	RES,CHIP	100	5% 1/10W	
R1840	1-216-025-91	RES,CHIP	100	5% 1/10W	
R1841	1-216-065-91	RES,CHIP	4.7K	5% 1/10W	
		<CRYSTAL>			
X1801	1-781-685-21	VIBRATOR, CRYSTAL			
**********					
*	A-1342-515-A	VM BOARD MOUNTED (KV-ES29N90)			
*	A-1342-536-A	VM BOARD MOUNTED (KV-ES29M61)			
		**********			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
		<CAPACITOR>			
C5401	1-126-935-11	ELECT	470MF	20% 16V	
C5402	1-137-194-81	MYLAR	0.47MF	5% 50V	
C5403	1-126-935-11	ELECT	470MF	20% 6.3V	
C5405	1-126-933-11	ELECT	100MF	20% 16V	
C5406	1-126-935-11	ELECT	470MF	20% 6.3V	
C5407	1-107-364-11	MYLAR	0.01MF	10% 200V	
C5408	1-107-364-11	MYLAR	0.01MF	10% 200V	
C5409	1-107-649-11	ELECT	2.2MF	20% 250V	
C5410	1-130-471-00	MYLAR	0.001MF	5% 50V	
C5411	1-130-471-00	MYLAR	0.001MF	5% 50V	
C5412	1-126-935-11	ELECT	470MF	20% 16V	
C5413	1-107-648-91	ELECT	100MF	20% 160V	
C5415	1-104-999-11	MYLAR	0.1MF	10% 200V	
C5418	1-107-638-11	ELECT	33MF	20% 160V	
		<CONNECTOR>			
CN5401*	1-770-723-11	CONNECTOR, BOARD TO BOARD 8P			
CN5402	1-764-334-11	PLUG, CONNECTOR 11P			
		<DIODE>			
D5400	8-719-911-19	DIODE 1SS119-25			
D5401	8-719-510-02	DIODE D1NS4			
D5402	8-719-911-19	DIODE 1SS119-25			
D5403	8-719-911-19	DIODE 1SS119-25			

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

VM

REF. NO.	PART NO.	DESCRIPTION				REMARK
D5404	8-719-911-19	DIODE 1SS119-25				
D5405	8-719-110-56	DIODE RD22ESB1				
D5406	8-719-110-56	DIODE RD22ESB1				
		<COIL>				
L5400	1-412-525-31	INDUCTOR	10UH			
		<TRANSISTOR>				
Q5400	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q5401	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q5402	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q5403	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q5404	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q5405	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q5406	8-729-045-05	TRANSISTOR 2SA2005				
Q5407	8-729-045-04	TRANSISTOR 2SC5511				
		<RESISTOR>				
R5401	1-249-425-11	CARBON	4.7K	5%	1/4W	
R5402	1-249-415-11	CARBON	680	5%	1/4W	
R5403	1-247-739-11	CARBON	100	5%	1/2W	F
R5404	1-249-418-11	CARBON	1.2K	5%	1/4W	
R5406	1-249-425-11	CARBON	4.7K	5%	1/4W	
R5407	1-249-399-11	CARBON	33	5%	1/4W	
R5408	1-247-807-31	CARBON	100	5%	1/4W	
R5409	1-247-815-91	CARBON	220	5%	1/4W	
R5410	1-249-401-11	CARBON	47	5%	1/4W	
R5411	1-249-401-11	CARBON	47	5%	1/4W	
R5412	1-249-429-11	CARBON	10K	5%	1/4W	
R5413	1-249-414-11	CARBON	560	5%	1/4W	F
R5414	1-249-432-11	CARBON	18K	5%	1/4W	
R5415	1-247-739-11	CARBON	100	5%	1/2W	F
R5416	1-249-385-11	CARBON	2.2	5%	1/4W	F
R5417	1-249-432-11	CARBON	18K	5%	1/4W	
R5418	1-249-414-11	CARBON	560	5%	1/4W	
R5419	1-249-421-11	CARBON	2.2K	5%	1/4W	
R5420	1-249-421-11	CARBON	2.2K	5%	1/4W	
R5421	1-249-385-11	CARBON	2.2	5%	1/4W	F
R5422	1-249-405-11	CARBON	100	5%	1/4W	F
R5423	1-215-915-11	METAL OXIDE	470	5%	3W	F
R5424	1-249-395-11	CARBON	15	5%	1/4W	
R5425	1-249-401-11	CARBON	47	5%	1/4W	
R5427	1-249-395-11	CARBON	15	5%	1/4W	

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MISCELANEOUS
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⚠	1-419-519-11	COIL, DEMAGNETIC (KV-ES29N90)
⚠	1-419-294-11	COIL, DEGAUSSING (KV-ES29M61)
	1-452-094-00	CIRCULAR DISC MAGNET B
	1-452-032-00	MAGNET,DISC
	1-452-896-11	COIL, NA ROTATION (RT200) (KV-ES29N90)
	1-452-896-91	COIL, NA ROTATION (RT200) (KV-ES29M61)
	1-505-473-11	SPEAKER (12CM)
	1-529-532-11	SPEAKER (5CM)
	1-543-827-31	CLAMP, SLEEVE FERRITE
	1-769-175-21	CABLE, ANTENNA (WITH FILTER)
⚠	1-792-065-11	CORD, FILTER WITH POWER
	1-792-458-11	CABLE, RF (KV-ES29N90)
	1-790-082-11	CABLE, RF (KV-ES29M61)
⚠	8-451-504-61	DEFECTION YOKE (Y29RSC-S2)
	8-453-011-11	NA299-M
⚠	8-735-056-05	PICTURE TUBE (M68LNH070X) (KV-ES29M61)
⚠	8-735-057-05	PICTURE TUBE (M68LNH070X) (KV-ES29N90)

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ACCESSORIES AND PACKING MATERIALS
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	A-1028-246-A	PACKING GROUP
	3-701-910-00	SCREW, SPECIAL (DIA. 3.8X20)
	4-392-004-11	CLIP (KV-ES29N90)
	4-059-705-01	CLIP (KV-ES29M61)
	3-867-756-71	MANUAL, INSTRUCTION (KV-ES29N90)
	3-867-890-11	MANUAL, INSTRUCTION (KV-ES29M61)
	4-392-003-01	BAND, HOLD (KV-ES29N90)
	4-392-003-21	BAND, HOLD (KV-ES29M61)
*	4-062-487-01	TRAY (KV-ES29N90)
*	4-064-409-01	TRAY (KV-ES29M61)
*	4-071-703-01	CUSHION (UPPER) (ASSY) (KV-ES29M90)
*	4-071-704-01	CUSHION (LOWER) (ASSY) (KV-ES29N90)
*	4-075-205-01	CUSHION (UPPER)(ASSY) (KV-ES29M61)
*	4-075-206-01	CUSHION (LOWER)(ASSY) (KV-ES29M61)
*	4-074-769-01	INDIVIDUAL CARTON (KV-ES29N90)
*	4-075-212-01	INDIVIDUAL CARTON (KV-ES29M61)
*	4-388-135-01	BAG, PROTECTION (KV-ES29N90)
*	4-054-764-01	BAG,PROTECTION (KV-ES29M61)
*	4-396-077-01	JOINT (KV-ES29N90)
	4-065-210-01	JOINT (KV-ES29M61)
	4-073-959-01	BASE, TRAY (KV-ES29M61 ONLY)
	4-073-657-01	CARTON FOR CONTROL DOOR (KV-ES29M61 ONLY)
	4-073-659-01	PARTITION (33-DO-1) (KV-ES29M61 ONLY)
	4-073-660-01	PARTITION (33-DO-2) (KV-ES29M61 ONLY)
	4-074-023-01	CUSHION (KV-ES29M61 ONLY)
	4-073-656-01	BASE TRAY (KV-ES29M61 ONLY)
	4-074-331-01	CARTON, FOR BC4 MOUNT (KV-ES29M61 ONLY)
	4-074-333-01	SHEET, C.F.B (KV-ES29M61 ONLY).
	4-074-334-01	PARTITION (33-BC-1) (KV-ES29M61 ONLY)
	4-074-335-01	PARTITION (33-BC-2) (KV-ES29M61 ONLY)
	4-074-336-01	SPACER (KV-ES29M61 ONLY)
	4-074-339-01	SHEET, C.F.B. (KV-ES29M61 ONLY)
	4-074-340-01	SPACER (KV-ES29M61 ONLY)

REF. NO.	PART NO.	DESCRIPTION	REMARK
	4-074-341-01	PARTITION (33-B3-1) (KV-ES29M61 ONLY)	
	4-074-342-01	PARTITION (33-B3-2) (KV-ES29M61 ONLY)	
	4-075-321-01	CUSHION (KV-ES29M61 ONLY)	
	4-075-322-01	HOLDER (KV-ES29M61 ONLY)	
	4-075-323-01	SPACER (KV-ES29M61 ONLY)	
	4-075-320-01	CARTON FOR H3 HOLDER (KV-ES29M61 ONLY)	
	4-075-321-01	CUSHION (KV-ES29M61 ONLY)	
	4-075-322-01	HOLDER (KV-ES29M61 ONLY)	
	4-075-323-01	SPACER (KV-ES29M61 ONLY)	
	4-075-318-01	BASE TRAY (KV-ES29M61 ONLY)	
	4-075-319-01	TRAY (KV-ES29M61 ONLY)	
	4-392-003-21	BAND, HOLDING (KV-ES29M61 ONLY)	

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REF. NO.	PART NO.	DESCRIPTION	REMARK
		REMOTE COMMANDERS	
		**********	
	1-418-566-11	REMOTE COMMANDER (RM-916) (KV-ES29M61)	
	1-418-824-11	REMOTE COMMANDER (RM-958) (KV-ES29N90)	
	4-074-721-01	BATTERY COVER, REMOTE COMMANDER	

Sony Corporation
Sony Technology Malaysia Sdn. Bhd.
TV Business of General Area

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